

The United States MILLER

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ODELL'S CONCENTRATED ROLLER MILL. PATENTED SEPT. 19, 1882.

A good many old mill buildings are so constructed and arranged as to be very much cramped for room, especially floor space, and in changing them over to the roller system of milling, valuable room is saved, and the work facilitated and cheapened, by the use of what is termed a Concentrated Roller Mill. To meet these requirements is the object of the machine illustrated on this first page, which was invented and patented by U. H. ODELL, and of which The Stilwell & Bierce Co. are the sole manufacturers.

The machine consists of a series of pairs of corrugated rolls with suitable scalping reels for making and scalping all the various reductions from the first break down to the finished bran, all comprised within one frame, which occupies less floor space than is necessary for two ordinary four-roll mills. The frame being made in sections, machines can be put up making either 2, 3, 4, 5 or 6 reductions as may be desired.

The engraving represents the manner in which the rolls are driven; the pulleys shown are on the slow speeded rolls, and are all driven by a six inch open belt running from a driving pulley on counter-shaft below the floor, (or a cross belt running direct from power shaft may be used if desired.) The fast speeded rolls are driven on the reverse side of the machine in a similar manner, by a six inch open belt running from the power shaft. It will be observed that all of the fast speeded rolls, excepting on the first break, are run in stationary bearings; and the slow speeded rolls in the movable bearings.

The grain receiving hopper, provided with an automatic feed regulating device, is located above the upper pair or first reduction rolls. After passing between these rolls the broken wheat passes into an ordinary scalping reel, which separates the flour and middlings from the broken wheat, the former being conveyed away by an ordinary conveyor located underneath each scalping reel, and the broken wheat falls over the end of the scalping reel and falls between the second reduction rolls. This process of reducing and scalping is repeated until the final reduction, which finishes the bran, is made on the lower pair of rolls. The manner in which the reels and conveyors are driven from an upright shaft, is clearly shown in the engraving; power is communicated to the upright shaft by chain belt from one of the roll shafts.

The manufacturers say: "The advantages possessed by the ordinary scalping reel over shakers, 'reciprocating sieves,' or any other known device for scalping the various reductions, will not be questioned by practical and experienced millers.

The reel runs slowly; can not get out of order; its efficiency is not affected by slight changes in speed, and years of experience has proven its entire adaptability to the work to be performed. On the other hand, a "shaker" or "reciprocating sieve" for scalping must run at a very high speed, which renders it liable to be out of order at any moment; an absolutely uniform speed, which is difficult, if not impossible, to obtain; the cloths clog up, thus carrying over the middlings, and in spite of the most careful management, will not deliver the material to the next reduction rolls in an even stream, but jerks it over in varying quantities.

The frame of this machine is all iron, and rests upon a substantial bed plate. The rolls are mounted in large self-oiling bearings and are provided with all the adjusting and leveling devices requisite for perfect work, and which have rendered Odell's Roller Mill so famous.

This machine is also provided with Odell's patent devices for simultaneously throwing each pair of rolls apart and shutting off the

feed, all of which is accomplished by a single movement of either one of the three hand levers shown in the machine, thus giving the miller absolute and instantaneous control of the entire machine. In short, this machine is practically a combination of several of Odell's regular single roller mills, with all of his superior adjustments, and the requisite scalping reels and conveyors all within one frame. There can be no question as to the quality of its work, since the reductions and separations are all made in precisely the same manner as when the ordinary roller mills are used, but in much less space and with a saving of elevators, used for handling the breaks and the power to drive them.

Concentration is a good thing, provided it is not carried too far, and it certainly is carried too far, when for the sake of saving a little in the height of the machine, it is so condensed as to render it complicated and difficult of access to some of its parts; and so as to necessitate the use of inferior devices for scalping the reductions, and thus prevent clean, close milling. Such a concentration "saves at the spigot, and wastes at the bung-hole."

About the only advantages that can reasonably be claimed for any concentrated mill, as compared with the ordinary roller mill process, are

1. A saving in floor space, which in some cases is of great value.

2. A saving of room occupied by the ordinary scalping reels, and elevators from the break-rolls, and the cost of erecting the same.

DIMENSIONS AND CAPACITY. FIVE-BREAK MACHINE.

Extreme length over all.	Extreme width over all.	Height from bottom of Bed Plate to top of Hopper.
8 feet 6 inches.	5 feet.	21 feet 6 inches.

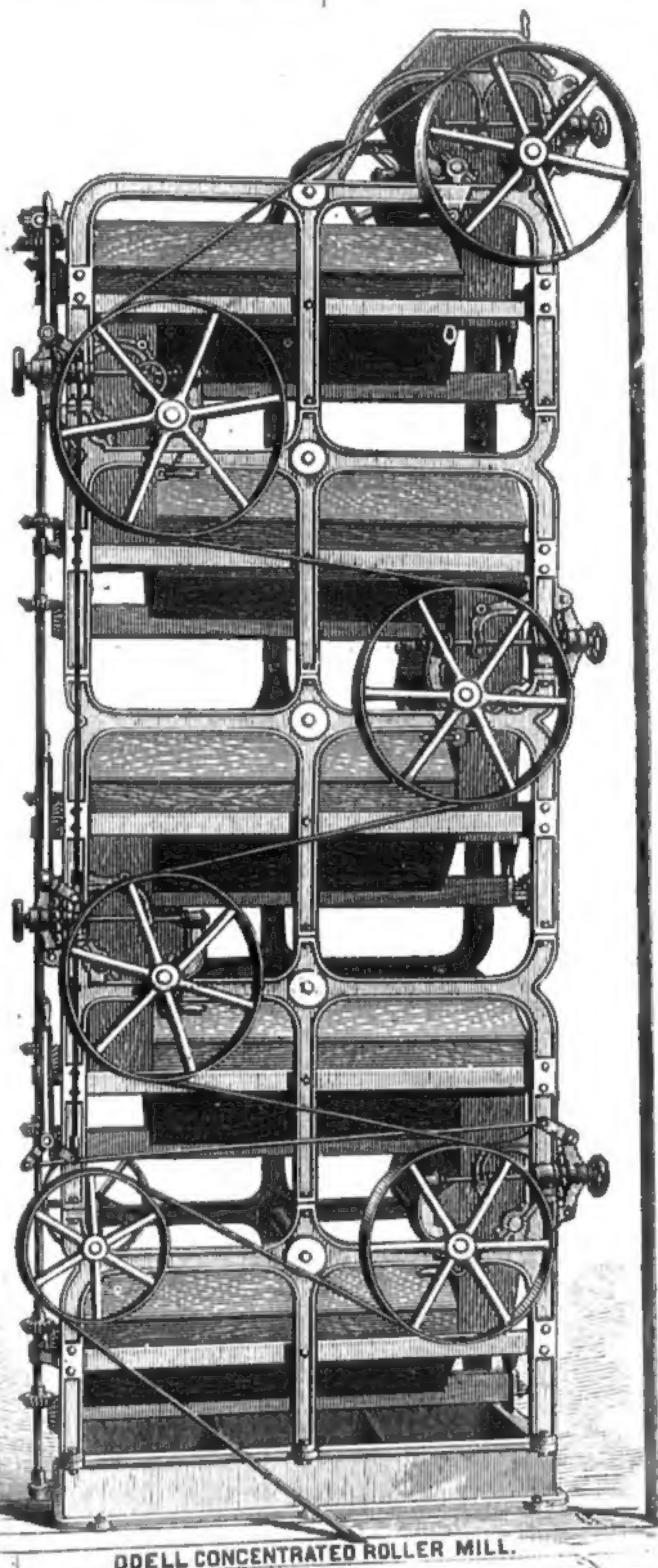
SIX BREAK MACHINE.

Extreme length over all.	Extreme width over all.	Height from bottom of Bed Plate to top of Hopper.
8 feet 6 inches.	5 feet.	25 feet 6 inches.

On the first break rolls we put a 30 x 7 pulley on the fast speeded roll, and run it two hundred revolutions; and a 36 x 7 pulley on the slow speeded roll, and run it eighty revolutions per minute. On the subsequent reductions we increase the speed of the rolls at will, by varying the size of the pulleys; it is only necessary to provide driving pulleys of suitable size to produce the above mentioned speed.

By varying the size and number of rolls in this machine, we can make them of any capacity from 150 barrels down to 75 barrels per day, and less if required.

Parties desiring further particulars should write to the STILWELL & BIERCE MANUFACTURING CO., Dayton, Ohio.



ROLLER MILLS.

BY THEODORE VOSS. (LONDON.)

THEIR PRESSURE AND LEVER ARRANGEMENT.
(Continued from February number.)

It is therefore, and also for other reasons, of the utmost importance that the pressure of the top roll is equal to that of the bottom roll, and that the working distance of both pairs remains constantly the same.

This, it will be easily seen from fig. 4, is hardly ever the case. The rollers must be set so that the top shaft touches the upper surface of the top bearing while the feed, forming an ever varying elastic cushion, passes between the rolls.

Whereas, therefore, the bottom roll will be kept firmly by its own weight in the lowest point of the bottom bearing, the middle and the top will be in a state of constant vacillation. With every slight variation of the feed the weight of the two upper rollers will tend to bring the rollers into actual contact, and as, therefore, the distance between them will be constantly varying (however little that may be,) it is certain that the crushing effect will vary accordingly.

Inequalities in the reduced material are, therefore, unavoidable, and this is proved by the well-known fact that three-high rollers only work well with a full even feed. If a positive constant distance could be kept up in such vertical rolls the crushing effect ought to be the same for any feed, as long as the rolls are not overcrowded.

With regard to the equality of the top and bottom pressure in vertical three-high roller mills, I am not acquainted with any construction in which this desideratum has been fully obtained.

Before going further into this question, I must ask the readers of this article to excuse the introduction of mathematics into this subject, but as my opinion differs entirely from that hitherto expressed by the manufacturers and agents of three-high roller mills I am obliged to prove my assertions.

The lever arrangement of one of the most prominent three-high roller mills (I believe there are from 300 to 400 at work in Great Britain and Ireland) is represented in the accompanying diagram (fig. 5.)

(The arrow *G* on the bottom roller should be reversed; the weight of the roll draws downwards.)

The middle roller is carried in fixed bearings, whereas the top and bottom rollers are carried in two elbow levers, bent at right angles. These two elbow levers are pulled against a small fixed eccentric by means of a spring *s*, and a small double lever, *a, b*.

This small double lever, *a, b*, has a long arm, *b*, and a short arm, *a*, and is probably intended to equalize the top and bottom pressure, but practically it does so only under the most exceptional circumstances.

With reference to this illustration, fig. 5, the two elbow levers, *d, c*, and *d, c*, with their respective arms, *d*, *c*, and *c*, turn round their fulcrum, *f*, and *f* respectively, and the different forces acting on these two levers are subject to the well-known relation that the forces which tend to turn to the right hand must be exactly equal to those which tend to turn to the left hand.

If we, therefore, name *G* the half-weight of the top or bottom roll which acts in each of the four bearings (two top bearings and two bottom bearings,) *p* the tension of the pressure spring which acts in the fulcrum of the small double lever *a, b*, *p*, and *p* the components of this spring pressure, corresponding to the relative length of arms *a* and *b* of double lever *a, b*; *P*, and *P* the bottom and top pressure respectively produced by the feed in the bottom and top bearing.

Then we have, with regard to *p* and its components, the following relations:

$$p_1 = p \frac{b}{a+b} \text{ and } p_2 = p \frac{a}{a+b}$$

Round fulcrum *f*, we have *G* and *P* tending to turn the lever to the left hand, acting with lever *d* as arm, and *p* acting on lever *c*, tending to turn to the right hand, therefore we obtain the following equation:

$$G d + P d = p_1 c_1 \\ (G + P) d = p_1 \frac{c_1}{d} \\ P_1 = p_1 \frac{c_1}{d} - G$$

and by introducing the above value for

$$p_1 = p \frac{a}{a+b} \\ P_1 = p \frac{a}{a+b} \frac{c_1}{d} - G \quad (1)$$

In the same way we have *G* and *p* turning to the left round fulcrum *f*, with levers *d* and *c* respectively, whereas *P* turns to the right hand, with *d* as lever, therefore,

$$P_2 d = G d + c_2 p_2 \\ (P_2 - G) d = c_2 p_2 \\ P_2 - G = \frac{c_2}{d} p_2 \\ P_2 = p_2 \frac{c_2}{d} + G$$

and by introducing $p_2 = p \frac{b}{a+b}$

$$P_2 = p \frac{a}{a+b} \frac{c_2}{d} + G \quad (2)$$

a, b, c, c, d and *G* are of constant value in these roller mills, and it can therefore easily be seen from equation 1 and 2 that there is only one value of *p*, for which the top pressure becomes equal to the bottom pressure; that is for $P_2 = P_1$ when we find that

$$p \frac{a}{a+b} \frac{c_1}{d} - G = p \frac{a}{a+b} \frac{c_2}{d} + G \\ p \frac{a}{a+b} \frac{c_1}{d} - p \frac{a}{a+b} \frac{c_2}{d} = 2G \\ \frac{p}{a+b} \frac{a}{d} (c_1 - c_2) = 2G \\ p (b c_1 - a c_2) = 2G (a+b) d \\ p = \frac{2G (a+b) d}{b c_1 - a c_2} \quad (3)$$

Therefore, only for this one value of *p*, viz.:

$$p = \frac{2G (a+b) d}{b c_1 - a c_2}$$

is the top pressure equal to the bottom pressure, because every factor on the right side of this equation is constant.

Every miller knows, however, that it is often necessary to alter *p*, that is the tension of the pressure spring, according to the nature of the material treated, and it is therefore clear that in order to make $P_2 = P_1$ for a different spring pressure *p*, it becomes necessary to alter some of the levers, either, *a, b, c*, or *c*.

Readers who have had interest enough to follow this investigation, cannot fail to come to the conclusion that for a roller mill with a lever arrangement, as shown in fig. 5, a spring

pressure must be objectionable. It is practically very difficult to adjust the two pressure springs, one on each side, so that both have the same tension. In most cases they will be *unequal*, consequently there will also be different pressures acting in *each bearing*. These four different pressures cause a corresponding wear in the four bearings, and these therefore require a continuous adjustment. Such means for minute adjustment have been provided for these roller mills in an admirable manner, and it may be said that without their minute adjustment they would never have gained a place in Continental and British mills.

Readers also cannot fail to see that it would be preferable to make the top roll entirely independent of the bottom roll, so

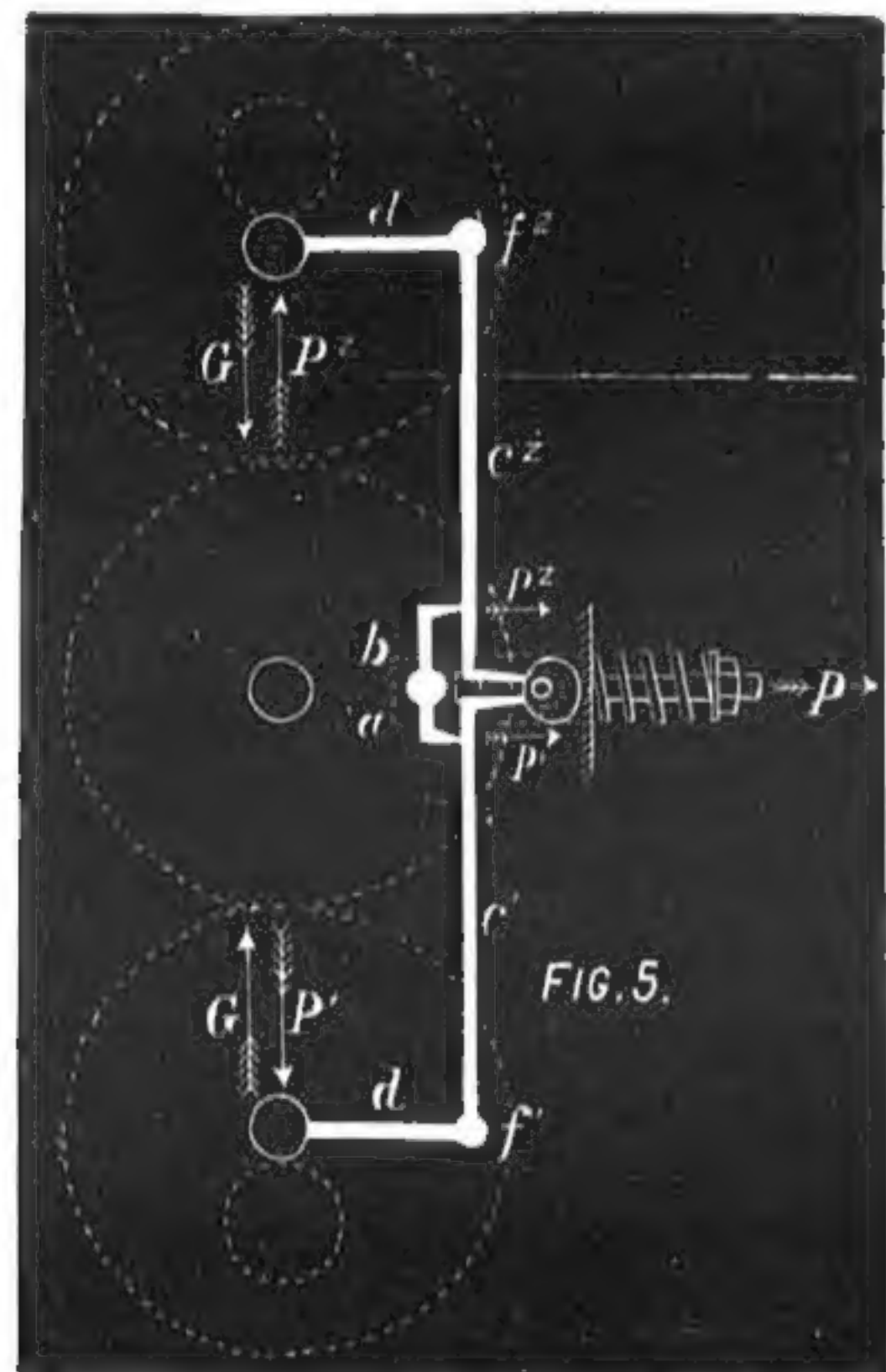


FIG. 5.

that each roller pair can be adjusted according to the material treated without influencing the other roller pair, or the small double lever *a b* might be differently proportioned for the different roller mills. For instance, for the first three breaks *a* and *b* might be proportioned for $p = 150$ and $P_2 = P_1$. For the fourth and fifth break $p = 200$ lbs. might be employed. The double lever *a b* for smooth rolls for reducing middlings might be proportioned for $p = 300$ and $P_2 = P_1$, and smooth grinding rolls for semolina might employ $p = 400$. But as the workman is never able to tell whether he has 200 or 300 lb. pressure on a spring, it is absolutely necessary in this case to produce the pressure *p* by means of weights, the influence of which is *unchangeable*.

TO BE CONCLUDED NEXT MONTH.

STILWELL'S LIME-EXTRACTING HEATER AND FILTER.

The waters used for the generation of steam for mechanical purposes, are, the world over, to a greater or less degree, impregnated with some foreign matter held in solution and ready for precipitation upon the slightest chemical provocation. Among these may be most frequently counted lime, magnesia, sulphur, iron, silica, etc., or mud and vegetable impurities not yet resolved into their original component parts. The universality of the existence of this condition of things renders the provision for a safeguard against a remedy for the consequent evils, a necessary factor in the primary calculations of every engineer. The course of injurious action in all these cases is the same—direct and natural.

Where the feed water is pumped directly into the boiler without being purified, the heat soon frees the impurities, which are precipitated upon the inner surfaces of the boiler shell and upon the flues as well, to which they cling in the form commonly known as "scale." A non-conductor of heat is thus interposed between the water and the boiler shell which can hardly fail in causing: a rapid deterioration of quality and quantity of the iron, from burning and corrosion; an excessive waste of fuel; explosions as matters of frequent occurrence; priming or foaming of the boiler, which causes grit to work over with the steam into the engine, greatly to the injury of all its parts; frequent and expensive repairs to boilers; stoppages and delays incident to the necessary cleaning of boilers. The actual cost and damages sustained from these more prominent evils, together with many minor ones unmentioned, all of which directly and inevitably result from the presence of scale in boilers, if summed up and expressed in dollars would astonish those whose profits and prosperity in business are suffering so largely from this cause. This is not a matter of speculation or vague theory.

Competent men, of learning and experience have expended much thought, time

and money in experimenting, with reference to the nature and effects of boiler incrustations. In a very able paper on Incrustation of Steam Boilers, read before the American Association for the Advancement of Science, by Dr. Joseph G. Rodgers, he says: "The evil effects of scale are due to the fact that it is relatively a non-conductor of heat. Its conducting power as compared to that of iron is as 1 to 37.50. This known, it is readily appreciated that more fuel is required to heat water through scale and iron, than through iron alone. It has been demonstrated that a scale 1-16 of an inch thick requires the extra expenditure of 15 per cent. more fuel. As the scale thickens the ratio increases; thus, when it is $\frac{1}{8}$ of an inch thick, 60 per cent. more is required; at $\frac{1}{4}$ inch, 150 per cent., and so on. To raise steam to a working pressure of 90 pounds, the water must be heated to 320° Fahrenheit. This may be done through a $\frac{1}{8}$ inch shell by heating the external surface to about 325°. If a $\frac{1}{4}$ inch scale intervenes, the boiler must be heated to 700°, almost a low red heat. The higher the temperature at which iron is kept, the more rapidly it oxidizes, and at any temperature above 600° it soon becomes granular and brittle from carbonization, or conversion into the state of cast iron. Weakness of boiler thus produced, predisposes to sudden explosions, and makes expensive repairs necessary."

We find that ordinarily there will have accumulated in a new boiler after four months' use, 1-16 of an inch of scale; after eight months' use, $\frac{1}{8}$ of an inch of scale, and so on. Now, if Dr. Roger's theory, as stated, in the scientific paper herein quoted from, be correct, it necessarily follows that after one month's service a boiler will consume 3½ per cent. more fuel than at first; after two month's service, 7½ per cent. more, and so on; making an average for the year of over 20 per cent. more fuel than it would have consumed if using pure water. Perhaps the most practical point from which to view the matter is that of direct loss in dollars and cents. Fifty horse powers, at five pounds coal per horse power per hour, amounts to 2,500 pounds coal per day of 10 hours, or 7½ tons per week of 60 hours; or 390 tons per annum. This amount of coal at \$3.50 per ton—a low average price—amounts to \$26.25 per week, and \$1,365 per annum, expended for coal. Now 20 per cent. of this amount equals \$5.25 per week of 60 hours, and \$273 per annum, which amount is actually lost in fuel alone on a fifty-horse power boiler, and which would be saved by the use of pure water, or in other words, by preventing the formation of the scale.

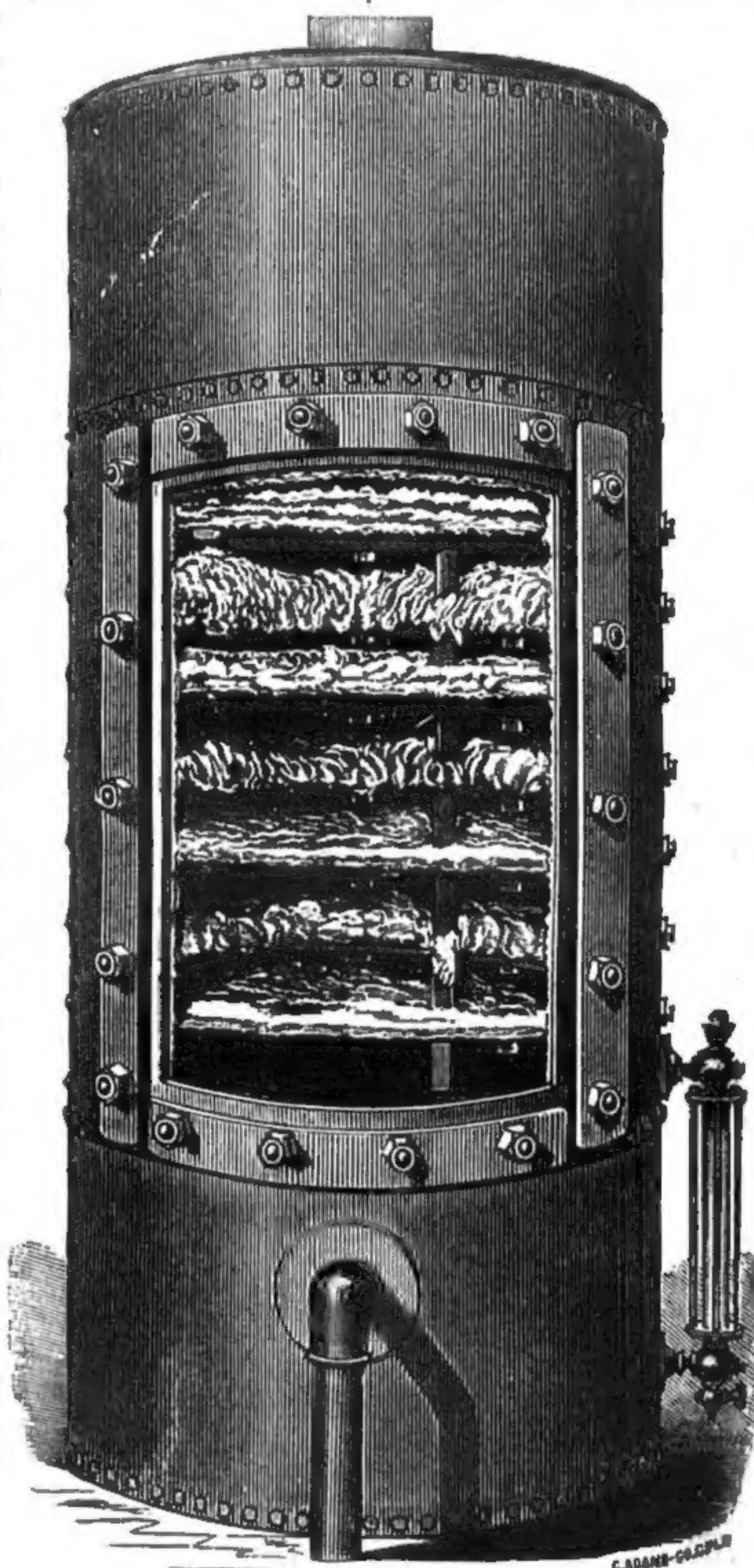
The difficulty of this scale formation can be overcome in three different recognized ways: First, picking the scale off by mechanical means. This is slow, clumsy and applicable to certain builds of boilers only. Second, purging the boiler by means of the chemical compounds known as boiler powders. This is dangerous chiefly from the evident fact that an acid or other chemical strong enough to eat off the scale will not stop there, but will go ahead and eat the boiler shell as well. Third, the use of pure water. The simplest and surest way is always the safest and best. If the water is purified from scale forming material before entering the boiler, certainly no scale can form. This brings us directly to a consideration of the means acknowledged by competent engineers as the best in use for the prevention of this formation by the furnishing of pure water.

Stilwell's Lime Extracting Heater and Filter Combined consists of an iron vessel of suitable size for requirements of the case, constructed in various shapes, but usually of

upright cylindrical form; into which the escape steam from the engine is exhausted. (Where no engine is employed it may be arranged for using steam direct from the boiler.) The cold water intended for the boilers enters the heater at its top, and in its passage downward to its outlet is thoroughly boiled, which process liberates the free carbonic acid, sets free the salts held in solution, and precipitates them upon suitable removable surfaces provided for their reception.

In a report of experiments made by Prof. C. E. Chandler, of Columbia College New York, for the N. Y. C. R. R., and read before the American Institute Polytechnic Association, the following article appears: Boiling water expels the carbonic acid, and causes the separation of the carbonates of lime and magnesia, and if conducted at a high temperature, and under considerable pressure, results in the almost complete precipitation of the sulphates of lime. This would, however, merely transfer the incrustation from the locomotive boiler to some other vessel."

This is exactly what the Stilwell Heater accomplishes. The water enters the heater and in its downward passage traverses a large area of heating and disposing surfaces, arranged in the form of removable shelves, having alternate openings. As the thin sheet of water passes over these shelves, all



of which are very hot, and descends from shelf to shelf, it is met in its downward course and constantly acted upon by an ascending current of steam, which enters the heater at the lower part. The action of this lower current of steam completes the separation and precipitation of the foreign particles, which is begun when the water enters the heater. The construction of the heater is such that not a drop of water can pass down through it without being thoroughly boiled. The lime, magnesia, sulphur, iron, silica, etc., which this process of boiling sets free from the water, are deposited in a crystallized state upon the entire series of shelves, the deposit always being heaviest upon the upper shelf and diminishing in quantity as it approaches the lower shelf. From this lower shelf the water passes through the filtering chamber, which completes the purification, and it is then fit, in its fuel-saving capacity, to enter the boiler.

The peculiarly advantageous features of this heater and filter, all of which are securely covered by letters patent, may be summed up as follows: The escape steam from the engine is utilized and the volume used enables the purifying of large quantities of water, while every particle of the water is boiled thoroughly; no other heater applies the same degree of steam heat, nor does any other allow the same opportunity for salts deposit; the arrangement of the shelves and the ease with which they can be handled and withdrawn for cleansing; the filtering-system, the leading point in which is that the water passes upward through the filtering chamber on its way to the discharge pipe and not downward or side ways, as is usually the case; the arrangement by which the door of the heater is fastened; there are no bolts, set screws, nor keys used, and the door of the largest heater can be removed in a couple of minutes; the heater is self-contained; occupies but very little space; very simple; easily and cheaply attached, and cannot get out of repair; finished in workmanship; supplied with a glass water-gauge, waste-cock, and can be successfully run by a common laborer; the peculiar adaptiveness of the upright round heater for muddy water impregnated with iron, sulphur, etc.

It is claimed that the use of the Stilwell

Heater effects a saving of at least ten per cent. of fuel where soft water is used, and when "hard" and impure water is used, it will effect a saving of from 15 to 50 per cent. of fuel not to mention the saving to the boilers, in time, and in obviating the necessity occasioned by "scale" of frequently "blowing off" and cleaning. The cut used herewith is from a photograph of a heater now in use, taken after a two week's use in heating water loaded naturally with lime held in solution. These heaters have been tested abundantly during the past ten years, and there are to-day over three thousand in active use. They are manufactured only by the STILWELL & BIERCE MANUFACTURING COMPANY, of Dayton, Ohio.

ANOTHER LARGE CALIFORNIA FLOUR MILL.

The *Journal of Commerce* of San Francisco, of a late date says:

The new flour mill built by Starr & Co., of San Francisco during the coming summer, on the southern shore of the Straits of Carquinez, near South Vallejo Junction, will be built upon a hard rock foundation, above water at low tide, on concrete arches, through which the tides can flow and ebb. The main building is to be of hard brick 150 x 180 feet, subdivided into three parts each 150 x 60, the central 150 x 60 being the first mill, six stories in height. This is to be filled with the best machinery the present day can supply, and driven by a powerful engine. The two other brick buildings, 150 x 60, one on each side of the mill, are to be used as warehouses, but will be so constructed that either or both can easily be adopted for use as mill buildings when necessary. The capacity of this first mill is to be 2,000 barrels of flour per day, with a possible future enlargement to 6,000 barrels per day, when all the three buildings are completed. The mill will have wharfage for schooners and barges on the east and west sides, while on the north will be the deep water berth of ocean going ships to load flour for Europe. Adjoining the mill to the west will be a grain warehouse and deep water wharf, 600 x 200 feet where grain ships will load for Europe. After a water-way of 150 feet another similar wharf and warehouse, 600 x 150 feet, is to be built. But the most interesting feature is to be a regular wheat elevator, with the best eastern improvements, to be constructed between the new mill and the wharf warehouse on the west, where wheat will be graded as Numbers 1, 2 and 3 shipping in bulk, but also into the various qualities required for all milling purposes. There is also room for a fine brick warehouse on "terra firma" in shore of 1,000 x 250 feet. The contract for building the wharves has, however, already been let, as well as all material purchased. Work is to be commenced early in February, and rapidly proceeded with. The demand for Starr flour in Europe has forced this extension upon the firm here, who have been quietly adding to their mills at Vallejo, until now their capacity is 1,500 barrels per day, to be increased to 2,200 barrels per day by the 1st of May next. The enlarged mill at Vallejo and the new one on the straits of Carquinez will, when completed turn out over 100,000 tons, or 1,000,000 barrels of Flour yearly, a quantity which, large as it is, is not more than can even now be readily and profitably disposed of, as the firm's brands bear a most enviable reputation in Europe and elsewhere, and have done so for many years. Some of our leading capitalists are, we understand, associated with Starr & Co. in this extension of their well established business.

We have often felt surprised that so much of our annual export should go as wheat and so little as flour. This enterprise, therefore, seems a step in the right direction, and, if well managed, should certainly be fairly profitable.

ADDITIONAL ITEMS.

THE Milwaukee Dust Collector Mfg. Co.'s works are crowded with orders, and are obliged to increase their manufacturing facilities and put in a large amount of new tools.

THE Northwestern Milling Co., of Milwaukee (formerly New Era Mills), are putting in more of the Prinz Patent Dust Collectors, furnished by the Milwaukee Dust Collector Mfg. Co.

THORNTON & Chester, of Buffalo, N. Y., are just putting in seven special sizes of Prinz Patent Dust Collectors, manufactured by the Milwaukee Dust Collector Mfg. Co. for 14 large size Smith purifiers.

THE Atlantic Milling Co., of St. Louis, (Geo. Bain, Pres.) have started their new mill and report great success with the Prinz Patent Dust Collectors, manufactured by the Milwaukee Dust Collector Mfg. Co., of which they have twenty in operation.

A. A. Freeman & Co., of La Crosse, Wis., are putting in the Prinz Patent Dust Collector, manufactured by the Milwaukee Dust Collector Mfg. Co., dispensing with their old dust-room entirely. Freeman & Jackson, of River Falls, Wis., are doing the same.

BECKER & Underwood, of Dixon, Ill., having tested one of the Prinz Patent Dust Collectors, furnished by the Milwaukee Dust Collector Mfg. Co., are putting them in throughout their mills, being fully impressed with their superiority over all others.

CLEANING SPLIT WHEAT.

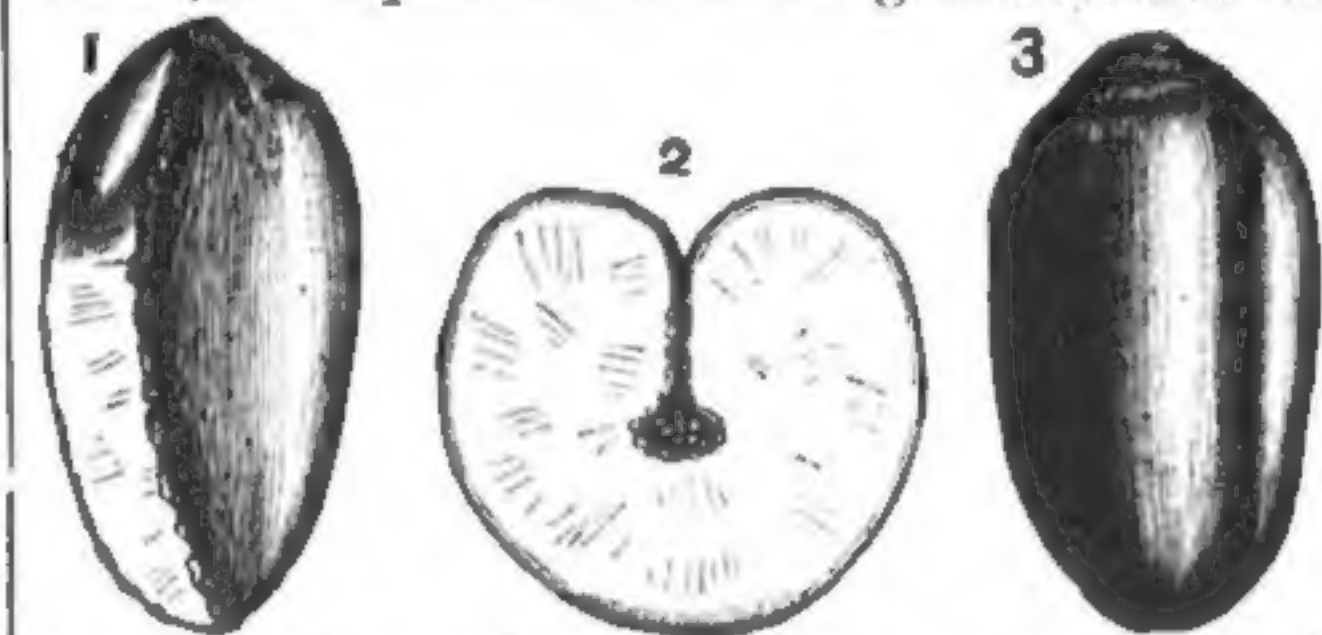
The acknowledged necessity of well-cleaned wheat in mills employing from six to eight reductions, where numerous purifiers and endless bolts assist in removing impurities, becomes a still greater necessity in mills making but a few reductions. The chief question now before millers operating mills of the latter class is how they can compete in the quality of their flour with larger mills equipped with a full line of gradual reduction machinery, and plenty of purifiers and other appliances for carrying out the gradual reduction theory in detail. The GARDEN CITY MILL FURNISHING CO. of Chicago, Ill., sole owners of the patent issued to Mr. Gathmann in 1881, covering this new departure in wheat-cleaning, believe, and claim that it is exactly what such millers need to bring up the grade of their flour, by removing impurities from the wheat at the start, and not depending altogether on bolts and purifiers to remove these impurities.

That the reader may from an intelligent opinion of the new step in wheat-cleaning and judge to what extent it is suited to the wants of the trade, we give below an abstract of the letters patent. We also present three illustrations of a wheat kernel. No. 1 is a half kernel after being split through the crease or seam, and showing the impurities lodged therein. No. 2, is a kernel broken crosswise showing the depth of the seam, and also showing the impossibility of cleaning or hulling the entire surface of the wheat berry unless it is first properly split, so that the whole surface of the berry is exposed to the hulling or cleaning action. No. 3 is a grain of wheat well cleaned without abrasion of the bran, which is of great importance in the successful operation of this new departure. Mr. Gathmann believes that there might be an advantage in wheat heating, and has provided in his patent for any previous manipulation of the wheat before sending it to the splitting machine, the point he makes being to secure thoroughly cleaned wheat before the flouring operations take place. He says that while a few years ago only one reduction was employed, millers have now gone to the other extreme in making from five to eight reductions; and that if the wheat be properly prepared by a thorough method of cleaning, it can be reduced to flour by making fewer breaks than would be possible if the wheat were not so well cleaned.

The following is a portion of the specifications of Mr. Gathmann's patent, numbered 250,436, and entitled Method of Cleaning and Hulling Grain: "The object of my invention is to employ a method whereby the hull or any portion thereof, as desired, may be more equally removed over the entire surface of said hull, including that originally extending into the crease; and also whereby, if no more is required, the impurities only upon the surface originally confined within the crease may be more perfectly detached preparatory to further reduction. To this end my invention consists, broadly, in brushing or scouring the grain after it is split, for the purpose either, of removing the superficial impurities exposed by splitting or removing the hull to a greater or less extent, as may be desired, over the entire surface thereof as it is exposed after splitting. If the grain is properly split, the fracture will be through the crease, and the portions of the bran surface originally hidden within the crease will be, fully and equally with other portions, exposed upon the fragments; also, if properly split, the fracture through the crease will expose but a relatively small surface of the food substance, and but little of such surface will be loosened in the act of splitting, so as to be readily detached. I have found that grain so split may be scoured sufficiently to remove the hull, or less severely to remove a portion of the hull, or still less to remove only the superficial impurities without detaching any considerable portion of the food

substance. It is, of course, obvious that such a scouring will take effect in a practical sense equally upon all portions of the bran surface, and that, therefore, by this method the parts of such surface originally protected or hidden in the crease will be cleaned or removed equally with the rest.

"In ordinary milling it will be advisable to clean the wheat before splitting it, and my method will in such milling be usually employed, mainly, for the purpose of simply cleaning the surfaces not exposed on the whole or unbroken wheat. This, however, is immaterial to my invention. I do not limit myself by reference to any steps that may precede splitting, or that may follow the cleaning or hulling of the half kernels or fragments produced by splitting, but only to the brushing, scouring or equivalent operation as a step succeeding the splitting of the grain, and preceding further reduction; nor is it material to my invention whether the grain is bolted after splitting and before scouring, as will sometimes be advisable, such bolting or separation not being understood as



a part of the reduction of the grain; nor do I limit myself to any particular mode or means for acting upon the split grain for the re-

ing cloth. The split kernels of wheat drop directly from the splitting machinery into the scalper, which is provided with brush blades something like the arms of a centrifugal. The black crease flour is scalped off from the product of the splitting machine, and the split kernels in their progress through the machine are brushed by the blades. The split wheat so brushed falls over the end of the wire cylinder. The germs detached fall over the end of the cloth cylinder, while a conveyor carries the flour back to the head of the machine where it is taken off. The manufacturers claim that they can do the work thoroughly and not make more than one per cent. of break flour in the operation; and consequently that the flour made on buhrs or reduction machines after this method of cleaning will be of a high grade. The Garden City Mill Furnishing Co., of Chicago, who own the patent on the process described, manufacture all the machinery described above, and it may be seen in operation at a number of mills.

THE MILLER AND THE FOX.

[An Oriental Tale translated from the language of the AVARS of CAUCASUS, by Prof. Anton Schiefner, of St. Petersburg, Russia.]

There once was a miller who was known by a name which may be translated as the Loathsome Hadji. From his house things used to be stolen. Angered thereat, he lay in wait for the thief, and caught a fox in the act of stealing. He was about to put it to death when it besought him to be calm, ob-

ants dashed into the water, rescued the miller and provided him with raiment so sumptuous that he could not keep his eyes off it. The fox explained that Bukutchi Khan was mourning for the loss of his own garments, which were composed of nothing but diamonds and rubies. "They did look like a rainbow," replied the khan's attendants, who were likewise induced to believe that the limewood gun was a priceless heirloom of Stamboul manufacture. "We remarked" they observed, "that it shown like silver."

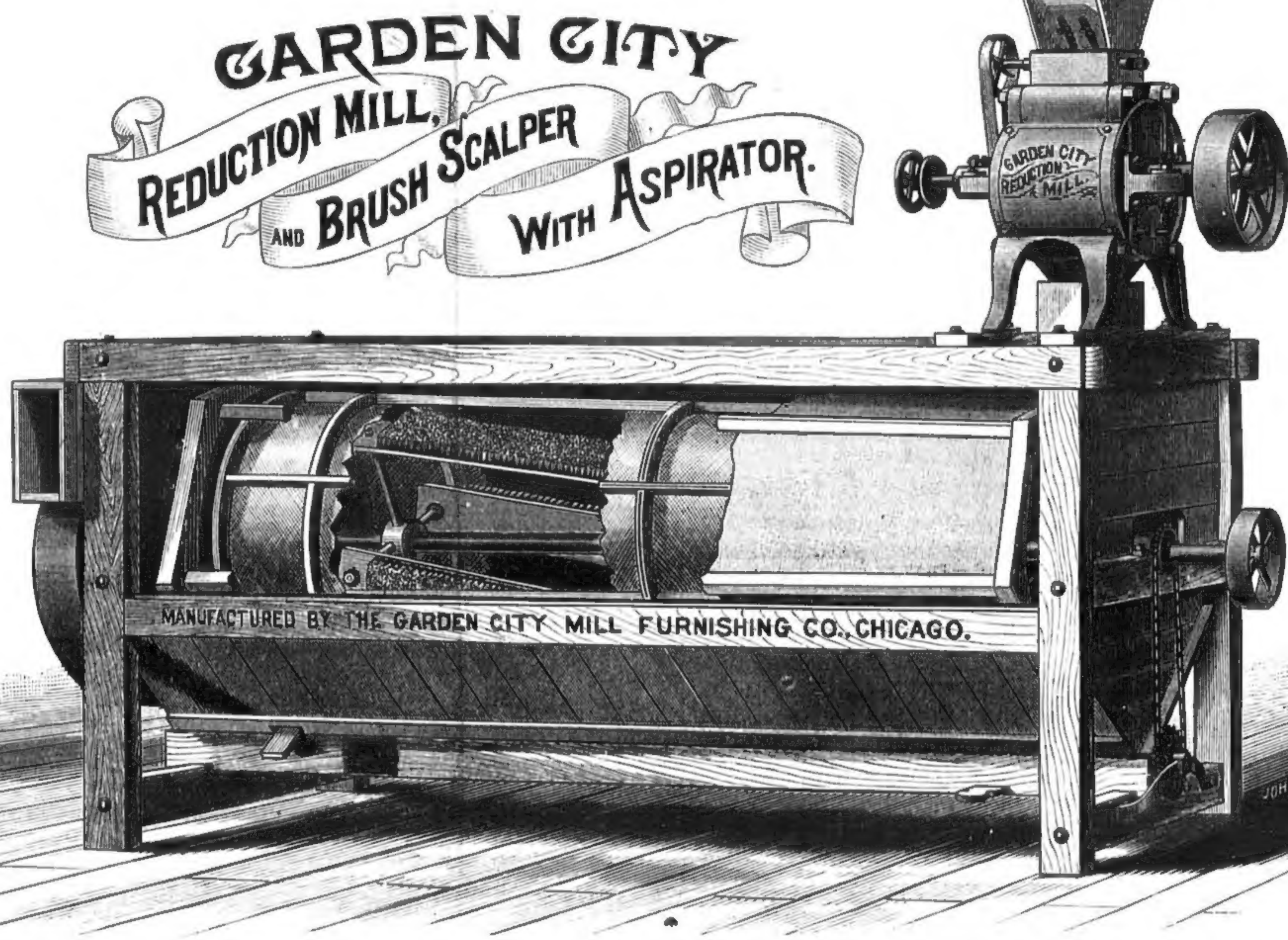
The so called Bukutchi Khan received the khan's daughter in marriage, and at the end of a festive week set out to take her to his home. The fox ran on in front, and when it came to a prairie on which much cattle were grazing, asked to whom the herds belonged. "To the dragon," was the reply. "Take care," exclaimed the fox, "utter the dragon's name no more, his cause is lost, the host of the seven princes is going up against him with cannon, artillery, mortars and guns. If you say the cattle are his, you will be killed, and every head of cattle carried off. There is a khan feared by kings, called Bukutchi Khan. If any one asks you, say the cattle are his; then no man will have anything to say against you." The herdsmen followed the advice of the fox, as did the shepherds, mowers, and other laborers whom it accosted. Whenever the attendants of the young married couple asked to whom belonged the cattle or sheep, or meadows they saw, the answer was always "To Bukutchi Khan."

Meanwhile the fox entered the castle of the dragon, who was the real proprietor, and informed him that the host of the seven princes was coming against him. "What shall I do?" exclaimed the terrified dragon. "Creep under that hay," replied the fox, pointing to a huge stack in the middle of the courtyard. The dragon did so, and the fox set it on fire. The dragon was fried "like a sausage," and his castle, together with all his property, passed into the hands of the newly wedded pair.

All went on well for a time. At last the fox determined to test the ex-miller's gratitude. So it lay down one day and pretended to be dead. "Just look!" cried the khan's daughter, "our fox appears to be dead." "It would be a piece of luck if it were to die seven times more, one after the other," replied her husband. "This good-for-nothing has become a bore." Up jumped the fox and cried, "Shall I tell of the Loathsome Hadji? Tell about the limewood gun? All about the miller tell?" Down on his knees went Bukutchi, wept and prayed, and smote himself on the head. So the fox forgave him. But soon afterward the fox died in reality. Bukutchi Khan was afraid that this also might be a pretence, so he slit open a fat sheep's tail, and carefully placed the fox inside."

A SERIES of experiments were recently conducted in Europe by Mr. Sanson to determine whether it was better to feed horses with oats whole or crushed. A graduated electric apparatus was used to measure the muscular and nervous excitability caused by the feed, and the results led to the belief that oats eaten whole produce more exciting power per hour than crushed oats. The exciting principle in oats is a brown nitrogenous substance uncrystallizable, apparently belonging to the family of alkaloids, and which Mr. Sanson calls avenine. On many of our breeding farms it is the custom to bruise or crush oats fed to the old mares and young colts. The stimulating effect of the food is more immediate than if the oats were fed whole, but it is not so strong or durable. For racehorses and workhorses uncrushed oats is the better food.

SCHWARTING & Co., Wolcott, Iowa, have just contracted with Stout, Mills & Temple, Dayton, O., for a complete roller mill, using the Gilbert combined mill for breaks, and Livingston finishing rolls.



moval of the hull or of a portion thereof, or of the superficial impurities. I, however, prefer to use a brush grain cleaner, particularly for the lighter actions desired, and to accompany the brushing with an air-draught to immediately separate the parts detached. I am aware that it has been customary to split the lobated grain through the crease, and thereafter to submit the split kernels to an air blast or to a bolting action. This obviously is not the equivalent of the method herein claimed, which involves the subjection of the split grain to a positive scouring action, since such mere bolting or blowing is only adapted to take out particles or impurities already detached from the grain, and not to detach them or to in any degree decontaminate the grain. The splitting of the grain may be effected by any of the well-known and approved machines for the purpose, but preferably by the smooth-surfaced corrugated discs or rollers now extensively used in splitting and reducing grain."

The claim made under these specifications is: "In the reduction of creased or lobated grain, the method described, which consists in splitting the grain through the crease, and thereafter subjecting the fragments or half kernels to a brushing or scouring action, preparatory to further reduction." The machinery for carrying out this process is shown in our illustration which is almost self-explanatory. The engraving shows a Garden City Wheat Splitting Machine placed above one end of the Brush Scalper and Aspirator, which is a double cylinder clothed within with wire cloth, and on the outside with bolt-

serving that "hasty water reaches no sea," and promising in case of pardon to make the miller a great man, and to gain for him the hand of a khan's daughter. The miller accepted the offer of the fox, and promised, if it made good its words, to feed it, as long as it lived on fat and to bury it after its death enveloped in a mass of fat sheep's tails. The fox ran off and searched among rubbish till it found a silver coin. Then it went to the khan and asked for the loan of a measure in which to mete the silver wealth of its master Bukutchi Khan. The khan wondered who the unknown potentate could be, but lent the measure, which the fox presently returned with the coin sticking in it. Next the fox searched about till it found a morsel of gold. Then it went again to the khan and borrowed the measure once more, this time for the purpose of measuring the golden stores of its master Bukutchi Khan; taking care that the measure when returned, had in it the morsel of gold it had found. The khan formed a high opinion of Bukutchi Khan's pecuniary resources, and "died of joy," that is to say, was glad when the fox asked for the hand of the khan's daughter on behalf of its master Bukutchi Khan. Next day the fox made a garment for the miller "out of the most beautiful flowers of the hills," and sent him down with a gun made of lime-wood on his shoulder, to a river on the further side of which the khan's retainers were to meet him. In accordance with the instructions of the fox, the miller stumbled and fell while fording the river, and the stream rapidly carried away all he had on and with him. The khan's serv-

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

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[Entered at the Post Office at Milwaukee, Wis., as second class matter.]

MILWAUKEE, FEBRUARY, 1883.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. You will thereby oblige not only this paper, but the advertisers.

DURING the month of January, 12,940 immigrants arrived in this country.

DURING the year 1882 the receipts of rice from the Hawaiian Islands at San Francisco, were 120,500 bags.

THE *Grain Review* of St. Louis, has changed its name and put on a new head, which reads "*American Trade Journal & Grain Review*."

THE Board of Trade of Kansas City, Mo. have passed a resolution requiring all flour received into regular warehouses to be inspected. This is a move in the right direction.

Abundant rain has fallen in California, about the same amount as in 1880 and the *Journal of Commerce*, San Francisco, predicts a crop of 70,000,000 bushels of wheat this year in California.

WE acknowledge the receipt of a very handsome catalogue of flour milling machinery from Messrs W. R. Dell & Son, 26 Mark Lane, London E. C., England. This firm deals very extensively in American mill machinery.

Mr. Frederick Richardson, of Sunderland, late President of the National Association of British and Irish Millers, died recently. He was one of the most active and influential members of the Association, and his loss is deeply deplored.

WE have just received from Houghton, Mifflin & Co., Boston, Mass., publishers of KNIGHT'S NEW MECHANICAL DICTIONARY, the third section of that valuable work. The author died recently but the work of getting out the fourth and last section will only be delayed a few weeks. The price of the work complete is \$8.00.

"MILWAUKEE, her Commercial and Manufacturing advantages," is the title of a neat book of 200 pages just issued by Mr. Jno. E. Land. Mr. Land has had much experience in this class of work, and the result of his labors will, doubtless, be of benefit to Milwaukee. He is now engaged in preparing a similar, though far larger work for Chicago. We wish him success.

A miller in the backwoods of Wisconsin, recently received a sample copy of the UNITED STATES MILLER, and returned it to the Postmaster. In notifying us of the miller's refusal to accept it the Postmaster says: "He refused to accept it. Says that he is a *natural born miller*, and consequently no milling paper would be of use to him. He is a knowin' old D—."

THE cities and towns on the banks of the Mississippi and Ohio rivers and their tributaries suffered greatly during February from unprecedented floods. Considering the circumstances the total loss of human life has been small but the destruction of property amounts to millions of dollars in value. The cities which have suffered the heaviest are Cincinnati and Louisville. Contributions to a large amount have been collected for the homeless and destitute.

THE UNITED STATES MILLER gleams from a mass of official reports the following facts relating the U. S. Patent Office:

January 1, 1883, there was in the U. S. Treasury the sum of \$2,205,471.10 to the credit of the Patent Fund, this sum being the amount of receipts in excess of expenditures of the Patent Office Department.

During the year 1882 there were 31,522 regular applications filed, and miscellaneous

filings requiring examination increasing the number to 36,114.

The number of patents which expired during the year was 6,099.

The total number of patents granted during the year to citizens of the United States was 17,861; to foreigners 1,135.

The surplus of the office in the year 1887 was \$4,721.44, in the year 1882, \$325,351.78. The Commission now asks for more room and more help to keep business up to date.

IN answer to a correspondent the UNITED STATES MILLER states that the wheat crop of 1881 was 380,280,090 bushels, and for 1882 it was 502,789,600 bushels, being an increase of 122,509,510 bushels, or 32.2 per cent.

The corn crop for 1881 was 1,194,916,000 and for 1882 it was 1,624,917,800 bushels, showing an increase over the previous year of 430,001,800, or 36 per cent. The products of agriculture constituted about 80 per cent. of the total exports of the United States during the year 1882.

WE had a pleasant call from Mr. William Lehmann, the Milwaukee inventor, and Mr. Scheffler, head miller of the Centennial Mill in this city. Mr. Lehmann has recently patented a valuable machine for wheat reduction purposes which he calls, with considerable claim to propriety, "a steel millstone." The stone, or rather steel disk, is in form and dress very similar to a mill-stone, as dressed and proved by Lehmann's Patent Staff and Method. We will give a more extended description of this machine at an early date. It is now in successful operation in the Centennial Mill.

BAKING TESTS.

Philip Lang of New York recently baked a barrel of "Pillsbury's Best" (spring wheat flour), and a barrel of "White Light" (winter wheat), and found only a difference of 4½ pounds of bread in favor of spring wheat flour. A baking test by another party, produced 287½ pounds of bread from a barrel of winter wheat to 302½ pounds from a barrel of spring wheat flour. Another test was made with flour from Fultz and Mediterranean wheat; the Fultz yielded 308 pounds and the Mediterranean 287 pounds. A barrel of flour in another test made from Fultz and Mediterranean wheat mixed, yielded 304 pounds of bread.

DRIVING PILES WITH DYNAMITE.

A correspondent of the UNITED STATES MILLER, in Budapest, Austria-Hungary, in a recent letter, mentions an interesting experiment in pile-driving by the use of dynamite. The piles experimented on had already been driven by an ordinary pile-driver, but it was desired to drive them down further. An officer of the military engineer corps was detailed to superintend the experiment. The piles were squared and the top covered by a wrought-iron plate 15 inches square and 4½ inches thick. A 17½ ounce charge of dynamite in the form of a cake six inches in diameter, wrapped in paper and clay was placed on the centre of each plate and fired. The effect produced was estimated to be equal to 5 blows of a 1,500-pound hammer, falling from a height of 10 feet.

[Compiled for the UNITED STATES MILLER.]

RECENT MILLING PATENTS.

The following patents were issued from the United States Patent Office, January 1883:

Cockle-seed Separator, Geo. Adams and M. M. Jenkins, Sherburne, Minn.
Weighting-scoop, Issacher Bevis, St. Louis, Mo.
Mill-shone driver, James F. Callahan, Knoxville, Tex.
Apparatus for Gradual Reduction of Grain, William D. Gray, Milwaukee, Wis.
Flour-dresser, Louis W. Pruss, Minneapolis, Minn.
Flour-dressing Machine, " " " "
Ball and Driver for Mill-stones, Jacob M. Replogle, Farraught, Iowa.

Roller-mill, Sherman B. Richardson of Coopersville Mich., assignor to O. E. Brown Manufacturing Co., of Grand Rapids, Mich.

The following patents were issued February 6, 1883.
Bag-holder and Filler, Duncan R. Adkinson, Corsicana, Tex.

Grain Cooler and Drier, Sheldon P. Cook, Minneapolis, Minn.

Water-wheel, Augustus Flagg, Middlesex, England.

Centrifugal Flour-ball, Holcomb & Helme, Silver Creek, N.Y.

Mill-stone Dressing Machine, C. S. Hoover, Lancaster Pa.

Bullying-red, John D. Hurst, Salem, Oreg.

Roller-reduction machine for flour mills, Harley M. Rounds, Clear Lake, Iowa.

Bag-holder, W. E. Shellenberger, Woodland, Cal.

Middlings-purifier, John R. Smith, Rochester, N. Y.

Mill-stone Drier, Philip Steinmetz, assignor of one-half to Z. Gelsinger, Philadelphia, Pa.

Water-wheel gate, E. B. Williams and D. D. Earle, Forestdale R. I.

The following patents were issued February 13, 1883.

Centrifugal Machine, Oluf S. Andersen and T. F. A. Hansen, Copenhagen, Denmark.

Roller Grinding-mill, Cyrus T. Hanna, Allegheny, Pa.

Grinding mill, Charles W. Lawrence, assignor to Lawrence White Iron Portable Grist Mill Co., Boston, Mass.

Feed-hopper, Walter M. Rand, Olney, Ill.

Grinding mill, Silas C. Schofield, assignor to Freeport Machine Co., Freeport, Ill.

The following patents were issued February 20, 1883:
Grain and Seed Cleaning-mill, William Bowen, Edina, Mo.
Roller-mill, Charles B. Campbell, Buffalo, N. Y.
Turbine Water-wheel, M. D. Grow, Dubuque, Iowa.
Water-wheel, Bernhard Keiser, Ferndale, Pa.
Grain Weigher and Measurer, Freeman C. Mason, Ran-som, Mich.

Dust collector for Flour Mills, Faustin Prinz, Milwaukee, Wis.

Middlings-purifier, F. Prinz, Milwaukee, Wis.

Grain-cleaning Apparatus, William Shaw, Paris, Ky.

Combined Corn-sheller, Grinder and Horse-power, Joseph S. Farr, Cleveland, O.

FOREIGN MARKETS.

Under date of Feb. 11, Dunlop Bros., of Glasgow, write: The tone of trade has been strong throughout the past week, with a good demand for wheat and flour at full prices. Arrivals of flour large; of wheat, maize and other articles, liberal.

To-day's Market was fairly attended. Wheat firm, and a steady business done at about 8d. to 6d. per 240 lbs advance since last Wednesday. Flour unaltered, but in good request. Minnesota Patents and Straights very firm at full prices, as also winter wheat flours of this description. Hungarians at late rates selling largely for forward delivery, but the advance of 6d demanded tends to check business. Maize firm at last week's prices. Barley and oats in fair demand, and rather dearer, while beans and peas are unaltered.

Anton Kucke, of Liverpool, under date of Feb. 14, writes: The weather during the past week has been exceedingly stormy and wet, thus entirely preventing any progress to be made with field work. The agricultural situation is now becoming more and more serious for farmers, who are anxiously looking forward to a change for the better. Deliveries of native wheat continue on a fair scale, viz: 212,000 qrs. at the average price of 40s. 8d. during last week, against 46s. 5d. same time last year. During the past week there has been a continued good demand for flour of all descriptions, and buyers have had to pay extreme prices, with an occasional advance of 6d. per 280 lbs. on favorite brands of winter Patents. California flours, which are now in smaller compass are meeting with a ready sale at full prices. Hungarian flour also is in fair request, but without change in value.

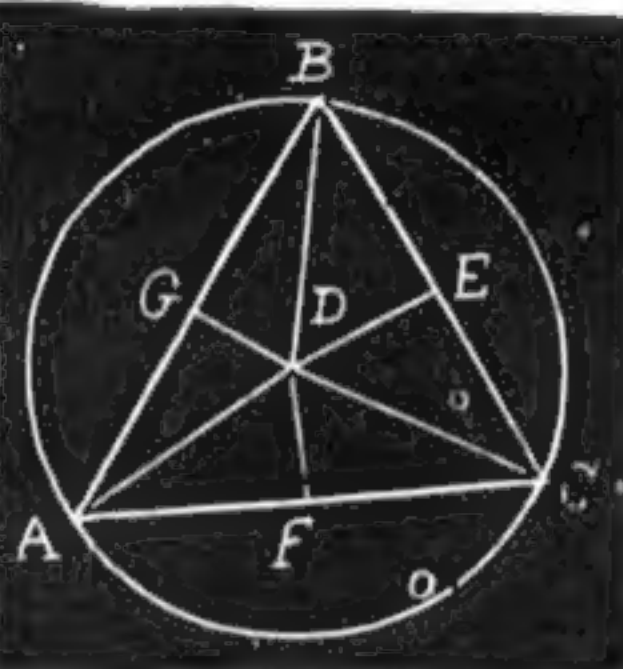
Wheat of all classes must be quoted 2d. per cental dearer on the week and cargoes on passage and for shipments, are held for 6d. per quarter advance, with a good deal of business transacting.

A correspondent in Sturgeon Bay sends us the following geometrical problem, which we take great pleasure in answering.

"Three brothers live on the corners of a triangular lot 11, 12 and 13 rods apart. They wish to dig a well so that it will be as near one as the other; required the distance to the well."

The question to be considered, stated in other words, will be as follows: to find the radius of the circle, which circumscribes a triangle whose sides are 11, 12 and 13 rods.

According to Euclid, the three lines which bisect the sides of a triangle at right angles meet in a point and this point is the centre of the circle, circumscribed about the triangle. Now, if the three brothers among other useful tools, also were provided with a surveyor's transit, they could easily find the point, which is of so much interest to them, but supposing they are not in possession of such an instrument, let us help them along in their noble endeavors to deal justly with each other. If $A B C$, therefore, be the triangle, in which



$A C = 11$, $B C = 12$ and $A B = 13$. Bisect the sides in E , F and G , and let the lines drawn from these, perpendicularly to the sides, meet in D , the lines $A D$, $B D$ and $D C$ thus representing the radius to the circumscribing circle.

We now recollect the familiar formula, viz.:

$$A = \sqrt{\frac{1}{2} S \left(\frac{1}{2} S - a \right) \left(\frac{1}{2} S - b \right) \left(\frac{1}{2} S - c \right)}$$

if A denotes the area; a , b , c , the sides of a triangle and $S = (a + b + c)$.

In this case we have, for the triangle

$$A B C = \sqrt{18 \times 7 \times 6 \times 5} = 6 \sqrt{105} = 61.44;$$

$$A D C = \sqrt{\left(\frac{11+2r}{2} \right) \left(\frac{11+2r}{2} - 11 \right) \left(\frac{11+2r}{2} - r \right)^2} = \frac{11}{4} \sqrt{4r^2 - 121};$$

$$B D C = \sqrt{\left(\frac{12+2r}{2} \right) \left(\frac{12+2r}{2} - 12 \right) \left(\frac{12+2r}{2} - r \right)^2} = 3 \sqrt{4r^2 - 144}$$

$$A B D = \sqrt{\left(\frac{13+2r}{2} \right) \left(\frac{13+2r}{2} - 13 \right) \left(\frac{13+2r}{2} - r \right)^2} = \frac{13}{4} \sqrt{4r^2 - 169}$$

and because $A B C = A D C + B D C + A B D$, we at last have our final equation

$$\begin{aligned} \frac{11}{4} \sqrt{4r^2 - 121} + 3 \sqrt{4r^2 - 144} \\ + \frac{13}{4} \sqrt{4r^2 - 169} &= 61.44; \\ 11 \sqrt{4r^2 - 121} + 12 \sqrt{4r^2 - 144} \\ + 13 \sqrt{4r^2 - 169} &= 4 \times 61.44; \\ \sqrt{484r^2 - (121)^2} + \sqrt{576r^2 - (144)^2} \\ + \sqrt{676r^2 - (169)^2} &= 4 \times 61.44; \end{aligned}$$

from which equation the value of r can easily be found. The distance is nearly 7 rods.

THIS IS BUSINESS!

The Milwaukee Dust Collector Manufacturing Co. Set a Good Example.

WHICH MILLERS WILL FULLY APPRECIATE.

A STRAIGHT-FORWARD BUSINESS LETTER.

The following letter, reprinted from a copy furnished to THE UNITED STATES MILLER, speaks for itself:

To the Executive Committee of the Millers' National Association, Mr. S. H. Seamans, Sec'y.

GENTLEMEN: We have noticed with great interest the proceedings of your late meeting at Cleveland, and the various suggestions there made relating to pendant and threatened patent litigation. Although we own and control a number of valuable patent claims bearing upon milling machinery, we heartily concur in the precautionary measures which you have seen fit to advance for the protection of the milling trade against unfounded claims protracted and costly litigation.

"Millers ought not in any case to buy machinery from irresponsible manufacturers, or from parties who are not willing to assume themselves the burdens and expense of litigation that may grow out of sales made by them."

The proceedings of your convention have sufficiently demonstrated that a large number of speculative suits have in the past been commenced, which, although successfully defended by your association, have nearly exhausted your cash resources and caused an expenditure upwards of \$150,000 in defending claims altogether unfounded.

Now with a view of assisting in your efforts, and bearing what we consider to be but a fair proportion of the burdens that any patentee who exacts royalty, or any manufacturer of milling machinery, ought to contribute towards the common end, we propose to your Association:

1. That we will abstain from the institution of all suits against individual millers or milling associations on ground of our patents and from a multiplicity of suits, until the validity and scope of our patent claims are fully established in one or two test cases, to be instituted in that behalf.

2. That we will not sue millers in any instance, unless the manufacturers cannot be properly reached or shall prove to be insolvent.

3. That we will assume the defense of the first case that may be instituted against any one purchasing milling machinery from us anywhere in the United States, employing counsel, defraying all expenses, and fully indemnifying the defendant against any damages and costs, if we should not meet with success in defeating such claim.

4. That we will enter into a bond to your Association in trust with good and sufficient surety in an amount not less than \$50,000 for the faithful performance of the various conditions and undertakings before stated.

We confidently hope that this example of ours will not only meet with your hearty endorsement, but will be speedily followed by all manufacturers of milling machinery who mean to cater for the good will of the public.

If our suggestions were universally adopted, it would relieve your association and the milling trade at once of the vast expense and annoyance now undergone, while at the same time the interests of honest, fair-minded inventors and manufacturers would remain fully secured and protected.

Will you please acknowledge the receipt hereof at an early date.

Respectfully,
 MILWAUKEE DUST COLLECTOR MANUFACTURING COMPANY,
 JULIUS SCHLESINGER, Sec'y.

OFFICIAL REPORT OF THE PROCEEDINGS OF
THE MILLERS' NATIONAL ASSOCIATION,
AT CLEVELAND, O., JAN. 31, 1883.SECRETARY'S OFFICE,
MILWAUKEE February 5, 1883.

TO THE TRADE:—I herewith submit for your information a condensed report of the proceedings of the second delegate convention, held at Kennard House, Cleveland, Ohio, January 31st, 1883, (pursuant to the call which is made a part of this report), a copy of which will be sent to every member, that he may be thoroughly conversant with the affairs of the Association. No condensed report, however, can do the Convention justice, and it is to be regretted that a larger representation of the milling interest was not in attendance. In my last report I made this statement: "Each year proves more and more conclusively the necessity of a strong organization, having for its purpose the welfare and protection of its members, regardless of the consequences to those who expect to reap its benefits, without sharing in the burden and expense," which the experience of an additional year and a half only intensifies.

I would particularly call your attention to instructions given to the Secretary, "to make out and furnish for publication a list of all the members and the capacity of their several mills." Before doing this, however, new blanks will be furnished each member in order that such changes as may have been made in their mills since the last report can be adjusted.

At a meeting of the Sub-Executive Committee, Millers' National Association, held in Chicago Nov. 20th, it was resolved to call a delegate Convention at the "Kennard House," Cleveland, Ohio, Wednesday, January 31st, 1883. Said delegates to consist of the entire Executive Committee, Millers' National Association, and in addition thereto, each organized State is invited to send its President, Secretary, and Executive Committee, and from each unorganized State, five prominent members are invited, all of which are desired and expected to be present.

This meeting is called for the purpose:

1st. To examine into, and discuss the various matters pertaining to patent litigation in which we are interested, present and impending.

2d. To discuss matters of dormant State Associations, and to propose some method whereby membership may be increased, and new interest be awakened to an extent, that all millers may come in and be benefitted by organization.

3d. To discuss matters pertaining to, and arrange for a GRAND RE-UNION of the members of the Association, in June next, and decide upon place for holding same.

4th. To discuss the advisability of offering a line of premiums for each meritorious devices, machines and improvements pertaining to milling and its methods, as may be deemed important and valuable.

5th. To discuss any, and all matters of interest, and attend to any business that may be deemed important, and for the good of our Association or its members.

Yours respectfully,

S. H. SEAMANS, Sec'y.

MISSOURI.—George Bain, President of the association and a member of the Executive Committee, Wm. L. Thomas, J. F. Lawton, of Carrollton, President Missouri Millers' Association, Frank Hill, Carthage, W. H. Waggoner, Independence, W. L. B. G. Allen, St. Louis, R. C. Miller, St. Louis.

ILLINOIS.—Col. Jas. C. Edwards, C. H. Seybt, Secretary of the Illinois Millers' Association, Highland, John H. Herman, Highland, Hy Schurman, Carlisle, D. R. Sparks, Alton, President Illinois Millers' Association, Robt. Suppiger, Highland, Edwin Raith, Highland, D. S. Shellabarger, Decatur, S. S. Randolph, Charleston.

KANSAS.—O. W. Baldwin, Ottawa, Secretary Kansas Millers' Association, W. J. Hays, Salina, T. J. Holdridge, Anthony, G. F. Harges, Wellington, Frank Goodnow, Salina.

INDIANA.—W. L. Kidder, Terre Haute, Phil. Trout, Mt. Vernon, J. W. Keeper, Terre Haute, Wm. Pollock, of Vincennes, Andrew Eckert, of Jasper, Wm. Frank, of Mt. Vernon, Lewis Suhrhomrich, of Evansville, Wm. Trow, of Madison, Jno. R. Callender, President and Nic. Elles, Secretary of the Indiana Millers' Association.

MINNESOTA.—John A. Christian, Chairman of the Executive Committee, W. P. Brown and E. D. Baker, of Red Wing, and E. V. White, Minneapolis.

WISCONSIN.—Was represented by S. H. Seamans, Secretary, and F. D. Blanchard, assistant Secretary of the National Association.

OHIO.—Homer Baldwin, President, Robt. Colton, Secretary, T. E. Barney, Secretary, Ferd. Schumacher, Akron, A. R. Elson, Magnolia.

IOWA.—J. J. Snouffer, Secretary.

NEW YORK.—Thomas Chester, President, Buffalo, J. A. Hinds, Secretary, Rochester, S. Howes, Silver Creek, W. G. Gage, Fulton, W. E. Boardman, Rochester, H. W. Davis, Rochester.

PENNSYLVANIA.—B. F. Isenberg, President, Huntingdon, Landis Levan, Secretary, Lancaster.

The newspaper contingent included C. M. Palmer, of the *Northwestern Miller*, W. L. Thomas and K. H. Stone, of the *St. Louis Miller*, Frank Thayer, of the *St. Louis Globe-Democrat*, C. A. Wenborne, *Milling World*, Mr. Tepper, *Millers' Journal*, Mr. Kellogg, *Roller Mill*.

The convention was called to order at 9 o'clock, in the parlor of the Kennard House, by Jno. A. Christian, Chairman of the Executive Committee, who stated briefly the purposes of the meeting and then asked Hon. George Bain to preside.

Mr. Bain took the chair. He said that the assemblage had been called together with two principal objects in view, first, to discuss the general situation of the associations' affairs, and second, to get an expression of views as to the necessity and usefulness of a general reunion of the members. No annual meeting was held last year, for the reason that the body was in the beautiful condition of having nothing to do. At the next annual meeting also, officers will be chosen. The first business before the assemblage was the secretary's report, and he trusted that the members would discuss it freely. He alluded to the fact that at a previous convention it was decided to exclude reporters, but said henceforth the meetings would be public, with the exception of those from which it is considered proper to debar the association's enemies.

REPORT OF THE SECRETARY.

Mr. S. H. Seamans then read his report as follows:

MILWAUKEE, Jan. 29, 1883.

MR. PRESIDENT:—At a meeting of the sub-Executive Committee convened at the Grand Pacific Hotel, Chicago, Nov. 20, 1882, it was deemed advisable to call together at this meeting, a sufficient number of our members from the different States, which would give us a full delegation from each State, which probably would not be the case if only the representative of each State in the Executive Committee was notified to attend.

Under these circumstances this meeting may properly be styled the second delegate convention of the Millers' National Association.

Each Secretary of the different State Associations has been supplied with sufficient printed notices of the call for and objects of this meeting, and attached thereto the blank to be filled by the State Secretary, officially notifying the proper delegates of their appointment, while the delegates from unorganized States have received their appointment from my office.

Our Association has had no general meeting since the delegate convention in Chicago, June 6, 1881. At that meeting the all-absorbing topic was the settlement of the *Cochrane claim* whereby the sub-Executive Committee was empowered to settle the same for \$6,000.

Owing to a conflict of interests claiming ownership, a settlement could not be consummated until the November following, when the sub-Executive Committee met Mr. Knickerbocker at St. Louis, and closed the settlement upon the terms as agreed in the convention.

Few members appreciate the trouble and anxiety of your committee, who have had this in charge since the meeting at Buffalo in 1877, nor the relief they experienced when this matter was settled so far as it concerned the members of this Association. When we consider that this case started with a decision of the United States Supreme Court sustaining it, and a claim against the millers of the United States for between \$30,000,000 and \$40,000,000, and when at the first onslaught the Washburn mill was put under \$250,000 bonds, while some were glad to make terms with the victors on the basis of \$1,000 per run of stone, we may be well satisfied with the final outcome.

In accordance with the terms of settlement at St. Louis, the suits at Minneapolis and St. Louis which were on appeal before the Supreme Court were dismissed, licenses were given to all our members and the Consolidated M. P. Co. received their money.

During the convention at Chicago, June 7th, the Denchfield matter was taken under consideration and fully discussed by various members, resulting in the unanimous adoption by the association of the following resolution of the whole Executive Committee:

"Resolved, That the matter of defense or settlement of the Denchfield patent be left to the sub-Executive Committee, for them to take such action as they may deem advisable for the interest of the Association."

The claimants under the Denchfield patent, having been very successful in litigating before the courts in New York, placed a high value upon their claim against millers using or infringing it, consequently had never offered any terms that Millers or State associations were willing to accept. Before the expiration of their patent, they began numerous suits in Minnesota, Wisconsin and Illinois which your committee prepared to defend most vigorously, at the same,

time entered into negotiations for a conference with the owners of the Denchfield patent.

This resulted in a meeting at Chicago Dec. 20 1881, between Mr. Jenney, attorney, and Mr. L. W. Bignall, plaintiff, representing the Denchfield interest, and the entire sub-Executive Committee, representing the Millers' National Association.

At this meeting the matter was very fully discussed by all parties, the Denchfield people, while not making a definite proposition, intimated that a settlement might be effected upon a basis of \$80 per infringing run of stone, a price your committee would not for one moment entertain, in view of the fact, that our attorneys advised against a settlement, assuring us that the claims under the patent would be defeated when the case on appeal came before the United States Supreme Court.

However, in view of the further fact that the result of a suit at law is very uncertain, and many members were desirous of having the case settled and out of the way, your committee made what they considered a liberal proposition, viz: \$25 per infringing run of stone for all members of the association. This proposition they declined to accept; further negotiations were suspended, and Mr. Harding was retained to take full general charge of the defense, while Mr. Gridley was retained to look after the suits in Minnesota, Wisconsin and Illinois.

Since the conference at Chicago, several suits covering similar grounds pertaining to re-issues have been decided by the United States Supreme Court that warrants us in the belief that our success in the result of the case now before the Supreme Court is well nigh assured.

Mr. Harding, in a late letter, dated January 6, states that the case will, without doubt, be reached for trial in March next, and that the court will, in his opinion, declare the re-issue void.

With this suit off our hands, we shall be free from litigation, but that we shall remain in this much-to-be-wished-for condition for any length of time I do not believe.

Even though our direct litigation may be ended with the termination of the Denchfield suit, we would be false to our trusts as representatives of the Millers' National Association were we to withhold our interest or our aid in patent right suits, the decision of which will directly or indirectly affect the interests of our association.

At the present moment it looks as if the Patent Office had put in the "new process" for turning out patents on milling devices, and foremost among them are those on rolls and roller mills. In this connection would say the *Cleveland Leader* this morning, has this item:

Washington, Jan. 30th, 1883, "There was issued from the patent office to-day 371 patents and 43 designs."

I am informed that we may expect ere long to be met by a 'bed rock' patent on the corrugating and use of corrugated chilled iron rolls. If this proves true, and my authority for the information is good, who is to defend it? It certainly ought not to fall upon the 2,500 capacity now represented in our association, while the 20,000 outside will reap equal benefits.

Every mill using Modern or improved machinery, such as rolls, purifiers, centrifugals, etc., should belong to this association through the different State organizations, and one of the main objects for which this convention is called is to investigate and provide some method by which this can best be accomplished. A large and complete organization insures small assessments, great power for defense, and the minimum of liability to be attacked.

Respectfully submitted,

S. H. SEAMANS,

Secretary.

The President invited discussion.

C. H. Seybt, of Illinois, said that the Denchfield suit was the only actual case of litigation now commanding the association's attention. He was of the opinion that many machinery builders are making machines without proper patent protection, and many millers are using their devices without proper reflection. This gets them into trouble and they come to the association for protection. He wanted millers to use ordinary business caution, and thought that the association should not be expected to defend suits arising from the purchase of machinery at random. He alluded to the growth in the production of devices and their increased use, which might cause trouble, and thought that the millers should reap the reward or bear the burden of their own wisdom or folly as the case might be.

This precipitated a lengthy discussion between Mr. Bain, Mr. Sparks, Mr. Seamans, Mr. Christian, Mr. Snouffer and others, and resulted finally in the reference of the whole matter and others alluded to in the Secretary's report, to a committee consisting of one gentleman from each State. Mr. Bain antagonized Mr. Seybt's motion, which was in substance to the effect that the Millers' National Association is not expected to defend its members in infringement suits unless the purchases are made only from responsible parties. The motion for the appointment of a committee to consider this and the other points was adopted, and the president

appointed Elles of Indiana, White of Minnesota, Gage of New York, Sparks of Illinois, Baldwin of Kansas, Snouffer of Iowa, Waggoner of Missouri, Barney of Ohio, and Levan of Pennsylvania, as such committee, to which, on motion of Mr. Snouffer, was added Mr. Christian of Minnesota, and Mr. Seamans of Wisconsin.

A dispatch was received by Mr. Bain, which read as follows:

St. Louis, January 31, 1883.

"Exports from New York for the week 270,000 sacks flour, against 203,000 bushels of wheat. This verifies our Buffalo talk of five years ago. Kind regards to all.

ALEX. H. SMITH.

The significance of this dispatch was much appreciated by those who had prophesied this great advance in flour exports. The figures sententiously signify that our export was equal to at least five times as much in the shape of flour as in wheat. The dispatch was received with great applause.

The report of the treasurer was next read, received and adopted.

TREASURER'S REPORT.

TREASURER'S REPORT NATIONAL MILLERS' ASSOCIATION
FOR THE FISCAL YEAR ENDING JUNE 1, 1882.

Balance in treasury as per report	
June 1, 1881.....	\$1,294.59
Received from Illinois Association.....	2,250.00
" Indiana.....	395.50
" Kansas.....	185.00
" Maryland.....	560.00
" Minnesota.....	7,210.00
" Missouri.....	2,290.00
" Nebraska.....	120.00
" New York.....	3,518.69
" Ohio.....	390.00
" Pennsylvania.....	535.00
" Virginia.....	1,080.00
" Kentucky.....	190.00
" Montana.....	10.00
" District Columbia.....	60.00
" California.....	330.00
" Delaware.....	90.00
" Tennessee.....	70.00
" Texas.....	75.00
" Colorado.....	10.00
" Oregon.....	130.00
" Iowa.....	1,135.00
" Wisconsin.....	3,710.00
" Michigan.....	760.00
Total.....	\$20,378.72

DISBURSEMENTS.	
Postage and telegrams.....	\$14.85
Blank books and stationery.....	27.25
Printing (miscellaneous).....	16.10
Printing (crop reports June and July 1880 and 1881).....	97.25
Travelling and hotel expenses (officers).....	36.93
Exchange.....	31.08
George Harding, account A. M. P. Co. suit.....	5,000.00
Account Denchfield suit.....	2,000.00—7,000.00
Stenographer.....	20.00
N. C. Gridley, account Denchfield suit.....	1,765.75
P. B. Gove, account Geo. Harding.....	200.00
Jacob Amos, account Geo. Harding.....	130.00
Defending A. M. P. Co. suit (Jos. La Croix).....	500.00
Defending A. M. P. Co. suit (Incidentals).....	123.51
Defending A. M. P. Co. suit (final settlement).....	6,000.00—6,623.51
Defending Denchfield suit.....	334.62
Wisconsin account, S. H. S. personal.....	2.25
Office expenses from June 1, 1881 to June 1, 1882.....	2,000.00
Total.....	\$18,329.59
Balance in treasury.....	8,049.13
Total.....	\$26,378.72

S. H. SEAMANS, Sec'y.	
Balance on hand June 1, 1882 per previous report.....	\$8,049.13
Received from Illinois association.....	1,000.00
Received from New York.....	150.00
Received from Wisconsin.....	200.00
Received from Interest acct.....	490.00
Total.....	\$9,889.13

DISBURSEMENTS.	
Postage and telegraphing.....	\$ 5.00
Printing crop reports from May 29, 1882 to July 15, 1882.....	131.15
Traveling and hotel expenses.....	12.50
Exchange.....	2.50
Geo. Harding.....	2,000.00
Office and incidental expenses.....	975.00
Other attorneys.....	250.00—\$3,376.15
Balance on hand.....	\$6,512.98
Total.....	\$9,889.13

S. H. SEAMANS, Sec'y.

It was stated that Mr. Geo. Harding is retained as counsel until the Denchfield case is argued before the Supreme Court. Adjourned.

Afternoon Session.

The committee appointed at the morning meeting reported through Nic. Elles, chairman, as follows:

PREAMBLE AND RESOLUTIONS.

WHEREAS, It is necessary that important and immediate steps shall be taken to keep up and maintain the existence of our association for defense and protection, and

WHEREAS, It is now evident, and such information is to hand, that there will again be trouble with patentees of mill machinery; therefore, be it

Resolved, That the Millers' National Association will defend or settle all patent right suits against its members, except in cases where the National Executive Committee after full investigation, decide against the advisability of defending or settling such claims, and so notify the member threatened with suit.

Resolved, That we recommend the National Executive Committee to levy an assessment of \$10 per unit of capacity. (thirty-five barrels output in twenty-four hours to constitute such unit

of capacity), payable, \$5 March 15, and \$5 September 15, 1883; said sum to be used for the purpose of defraying the expense of carrying on the association, the investigation of patents, and the defending of such suits as may be brought against our members.

Resolved, That organized State associations may admit new members, who will also be members of the National Association upon the payment of the assessment levied for 1883. From unorganized States new members will be admitted direct to the National Association upon the same terms.

Mr. Snouffer said that the resolutions commanded his hearty approbation after the lengthy discussion in the committee room which had resulted in their expression. They had met with deliberate consideration and been adopted unanimously. He hoped they would be adopted without change as they were calculated to advance the best interest of millers.

Mr. Seybt suggested that the general intent of the resolutions differed in no manner from the previous policy of the association. The desire is to keep millers out of trouble, not to protect or defend them when they got into it. There was but little improvement on material points over the procedure of the association heretofore.

Mr. Bain was opposed to the passage of the resolutions for several reasons. He did not want to admit new members on the same basis as those who had borne the heat and burden of the many wearisome and perplexing days through which a few comparatively had bravely struggled. He was not so much opposed to the admission of new mills at the low rate proposed; but he was emphatically opposed to the idea of letting in the selfish class of millers who wanted to save \$30 or \$40 in a penny-wise and pound-foolish adherence to the organization.

Mr. Schumacher thought they should be made to pay twice the rate.

Mr. Isenberg, of Pennsylvania, said that he knew from personal experience how difficult it was to collect the assessments, even as low as they now are, and said that he had heard that it was equally difficult in some of the other States.

A motion was here made that the preamble and resolutions be taken up and discussed *seriatim*, upon which the preamble was again read by the secretary and adopted without debate.

The first resolution was read, and after a few remarks from Mr. Sparks, adopted.

The second resolution was taken up.

Mr. Hinds, of New York, moved that the secretary be instructed to publish and send to all members of the association, a complete list and capacity of all mills belonging to the Association, a copy of which to be furnished the milling journals for publication. The motion passed.

Mr. Bain commented on the fact that the milling journals had taken their usual active and inquisitive interest concerning the question as to how or on what basis the assessments should be made. It was immaterial to him, how they were made, provided the result was money, with a big M. He suggested that a publication be made, showing the actual return of the output of the honest millers, giving the daily average capacity of the various mills. This idea was added to the resolution and thus amended was carried unanimously.

The third resolution was read and provoked an exceedingly animated discussion.

Capt. Baker desired to amend the resolution, so that new members should pay an initiation fee of \$5 per unit of capacity, in addition to the assessment for 1883; this he considered a very liberal proposition.

Mr. Snouffer, of Iowa, criticised the remarks of Mr. Bain, and alluding to the financial condition of the association as a basis for his sentiment said that he was in favor of admitting new, on the same basis as the old, members in order to encourage new members to join and help to maintain the organization.

Mr. Sparks said that the resolution had been adopted as a matter of policy and as an assistance in raising money, and he would therefore vote against Capt. Baker's amendment.

Mr. Elles stated that his state (Indiana) had fallen off considerably in membership, and based a favorable opinion of the resolution *sans* amendment upon the thought that many of these men might want to come into the "sheltering arms" once more. Indiana now has seventy-one runs represented. He thought a gain would result if the fee was not increased, and he endorsed the resolution as a matter of policy.

Mr. Hinds, of New York, gently suggested that such members would be likely to drop out of the ranks again, should no danger seem imminent.

Mr. Baldwin, of Ohio, was in favor of the adoption of some measure that would result in larger membership from his State. He instanced the parable of the Husbandman, and was of the opinion that no one would dispute the goodness of the agriculturist referred to. While the lamp holds out to burn the vilest sinner may return. Let these latter day saints come in. Be magnanimous.

Mr. Isenberg, of Pennsylvania is losing in membership he knew. He said that the adoption of the amendment would prevent accessions, but that

the liberal policy would give the association many new members from his State. Which is better, 200 members at \$100 each or 1,000 at \$20 each? He felt that the association needed the financial as well as moral aid that comes from a numerous membership.

Mr. Snouffer was determined to vote against the amendment, for the reason that the committee had considered the resolution thoroughly. He did not wish to require a bonus from either new or old members. Without inducements to men to join they would not come into the organization. He alluded to the fact that even if there was, as he had stated, no plethora in the treasury, there was no reason to look forward to anything of a threatening character.

At this point Mr. Bain arose and made a very impressive speech in which he "sat down," to use his own vernacular, upon the assertion that the association was not in a robust description of financial health. He was in favor of relying on those whose courage had been tried and not found wanting, who did not wait until they could ride at half-fare, so to speak, and from whom the association had never had trouble in collecting its assessments. The indisposition to assist came from just the class which was of no material assistance in the times of need. Besides, he suggested a new point in the question as to whether a person or corporation holding a claim against the members would not be more easily persuaded to a settlement if the association numbered 2,500 that if its ranks were swelled to 10,000. With the association small, but influential, the closer a corporation it was, the greater the benefits that could be derived by its members. He alluded in strong language to the derelict States and alluded to the States of Minnesota, Wisconsin, New York, Missouri, Illinois and Indiana as those who had done the most for the organization. "We have \$7,000 in cash in the treasury, and it is ours. We have no debts." He repelled the insinuation that the institution was penniless, and stated that adding the money that has been paid to attorneys and which still commands the lawyers' services, the assets of the association were equal to at least \$20,000. If we have to pay out, outsiders should be required to put up more to come in. Mr. Bain's speech was received with deep attention and solidified the meeting into one sentiment in favor of the amendment.

Mr. Snouffer made an explanation of the assertions made by him as to the poverty of the association, giving the reasons that lead him into an error that he was happy to find was one. Mr. Elles withdrew his objections to the amendment and it was adopted amid much enthusiasm.

THIRD RESOLUTION AS AMENDED.

Resolved, That organized State Associations may admit new members who will also be members of the National Association, upon payment of an initiation fee of \$5 for each unit of capacity, and the assessment levied for 1883. From unorganized States new members will be admitted direct to the National Association upon the same terms.

Mr. Seybt introduced a resolution, which was adopted, looking to the employment of an attorney. It reads as follows:

Resolved, That the Executive Committee be empowered to employ some legal counsel by the year, whose duty it shall be to keep fully acquainted with the patents affecting mill machinery. Said counsel shall, when called upon, report to the committee what patentee has, according to his opinion, the foundation claim to any disputed device. All millers have the right to apply to the Secretary of the National Association, for such information, and in this way much uncertainty and danger of litigation may be avoided.

Mr. Seybt then introduced the following resolution, which was adopted unanimously:

Resolved, That in order to guide the members of this Association in purchasing mill machinery they shall use due caution to buy only of respectable and responsible dealers, whose character and business standing is some guarantee for the worth and title of the machinery. If millers continue to purchase machines at random, without using ordinary business caution as to the title of the machines, they must know that they do so at their own risk.

Mr. Sparks made a motion "that the Secretary be instructed to prepare a memorial, petitioning Congress for the passage of a law which shall protect the innocent purchaser of a patented article in the open market, that may turn out to be an infringement." Which was concurred in.

A large number of communications were read by the Secretary, including invitations to visit various points of interest in and about Cleveland, an invitation to the Association from the management of the Louisville Cotton Exposition, to hold its annual meeting at that place in August, and communications from S. M. Bruns of Harrisburg, and C. T. Hanna, of Pittsburg, concerning certain inventions interesting to the persons named.

Also the following which explains itself, but upon which no action was taken:

CONSOLIDATED MIDD'S PURIFIER CO., }
JACKSON, MICH., Jan. 24, 1883.

To the Sub-Executive Committee Millers' National Association:

GENTLEMEN:—A state of affairs exists which has compelled us to take a position apparently

indicating a resumption of hostilities on our part against mill-owners, and we therefore desire to call your attention, and through you the attention of millers in all parts of the country, to the circumstances on which our action is based. We were in hopes that after the agreement at Chicago, in May of '79, all occasion for infringement suits against millers would be removed, and that only friendly intercourse between the trade and ourselves, tending to mutual profit and satisfaction would prevail; but a number of millers who are members of your association have not up to this time complied with the terms of the contract made with you at Chicago, and others persist in purchasing machines of irresponsible manufacturers, which are flagrant infringements of the patents owned by us. We have spent very large sums of money to perfect our titles, and are constantly on the alert to dispel any doubt which may arise as to the legality of our patents, to the end that millers who use purifiers licensed by us, while having the best machines, may also have with them the indisputable right to their use, undisturbed by claims for royalty or suits for infringement. But when millers, nevertheless insist on buying purifiers which are copied from ours in important respects, and which owe their usefulness almost wholly to features which are covered by our patents, and buy them of irresponsible parties, from whom we could recover nothing, we are compelled in self-defense to proceed against the purchasers themselves. In pursuance of this plan we have already begun suits against several concerns, and so far as we can now see, have no alternative but to enter suits in a large number of cases, in the near future, where millers have rendered themselves liable as above indicated.

We desire your association to clearly understand that we take this course under compulsion only, and not from choice. We should be glad, indeed, if the friendly and harmonious relations which we have constantly striven to establish and maintain with the millers of the whole country could have continued unimpaired in a single instance, but we hope and believe that in defending our rights and protecting our property, and the trade interest of our licenses by the only means to which we can resort, we shall have the approval of your association and of all fair-minded men.

Very respectfully,

CONSOLIDATED M. P. Co.

The next subject introduced was the propriety of holding a real old fashioned annual meeting of the Association. "The first meeting of the Association," said Mr. Bain, "was held in St. Louis, one has been held in Milwaukee, one in Buffalo ('a daisy'), one in Indianapolis, two in Chicago and one in Cincinnati." Mr. Bain suggested New York City, as, in addition to obvious business reasons, being the best in point of pleasurable inducements. Mr. Sparks favored the idea of a meeting and endorsed New York. A delegate from Kentucky spoke most eloquently in favor of Louisville. The general expression was in favor of New York, but the whole matter was finally referred to the President and Secretary, with power to act.

PREMIUMS.

Mr. Bain next read the portion of the published call for a meeting which refers to premiums, and spoke in favor of the adoption of such course of action as would be most calculated to stimulate inventions needed in the milling art.

Mr. Seybt said that one thing he would wish to see was a practical device for the packing of bran for export. Such an invention would materially increase our flour shipments and decrease those of wheat. A natural consequence would be the withdrawal of one principal element of the support which enables the European millers to compete with America, as their reliance for any profit was principally on the sales of the offal.

Mr. Brown made a motion to offer a premium of \$1,000 for the invention of a package that will result in a saving of five cents per one hundred pounds.

Mr. Bain supplemented by saying that what was wanted was something that will do effectual work in small as well as large mills, and that the purchase of the machine should be arranged for. Referred to the Sub-Executive Committee.

As soon as possible, the Secretary will furnish to the milling papers, also inquiring inventors, full and explicit particulars of what is required to compete successfully for the above premium.

Mr. Hafner, of Pittsburg, thought that \$1,000 would not go a great way toward compassing the end desired, judging from his own experience in the inventor's role.

Mr. Cummer, of the Cummer Engine Company, was granted the privilege of addressing the convention, which he did at some length. He also extended an invitation to the members to visit his works, which was accepted and taken advantage of the next morning by the entire delegation.

Adjourned to 9 o'clock Thursday morning.

In the evening the millers made a visit to the magnificent plant of the Brush Electric Company, and witnessed the first exhibition of the Brush-Swan system of incandescent lighting west of New York. The visitors were highly delighted with the visit.

Second Day's Proceedings.

Thursday, February 1st. The meeting was called to order by President Bain, at 10 o'clock, with about fifty delegates and members present.

After some desultory discussion of an informal nature, in the course of which the difficulties of packing bran for export were considered, Mr. Sparks secured the floor and spoke for some time on the subject of the association's work, the necessity for having a fund of \$25,000 or more in the treasury at all times, ready to fight any and all litigation brought against the association or its members. He desired all members to urge upon their friends and fellow members the necessity for paying their assessments promptly and willingly.

Mr. Christian requested the president of the Ohio association to speak on the condition of the association in his State. Mr. Baldwin responded and said that when he took his State association, it was all broken to pieces and that it was in that condition now; that a meeting had not been held in two years. He spoke of the great difficulty experienced in getting millers to join the association, and said that he was ashamed of his State so far as the millers were concerned. He was discouraged in the attempt to get new members when no difference could be noticed in the treatment of members and non-members.

Mr. Seybt asked Mr. Baldwin to assure his brother millers that they would be sued for all infringements as fast as suits can be brought—that the lenient policy of the past was unfair to members of the association, and that the owners of patents would no longer follow it.

The discussion which followed, occupied considerable time and the sentiments of Messrs. Baldwin and Seybt seemed to be the unanimous opinion of all members present.

Mr. Hill, of Missouri, offered the following resolution:

Resolved, That the Executive Committee of the Millers' National Association is hereby authorized and instructed to effect settlements in behalf of the association when the same can be effected for a nominal sum. But in case such settlement can not be effected, and they consider a claim to be unjust and without equitable grounds, they are instructed to contest up to the courts of last resort, and with all possible vigor.

Mr. Snouffer spoke at some length of the benefits he had derived from his membership in the association, instancing a number of cases where he had saved considerable amounts of money which non-members were obliged to pay.

Mr. Seaman continued on the subject and said that Mr. Snouffer had not given the association sufficient credit for the saving it had effected to its members, and cited other examples amounting to large sums.

Mr. Sparks, Mr. Isenberg, Mr. Baldwin, President Bain, Mr. Colton and others took part in the rambling talk which followed, on the best means to be adopted to create and maintain an interest in the State and National Association, after which the meeting adjourned *sine die*.

"THAT BRAN COMPRESSOR."

[Official Communication.]

MILLERS' NATIONAL ASSOCIATION.

SECRETARY'S OFFICE.

MILWAUKEE, WIS., February 19th, 1883.

Editor United States Miller:

By virtue of a resolution adopted at the Delegate Convention MILLERS' NATIONAL ASSOCIATION, in Cleveland, Jan. 31st ult., the Sub-Executive Committee are instructed to offer a cash premium of \$1,000 for the invention and production of the best practical machine that will enable mills of ordinary capacity to compress BRAN economically into a suitable, cheap and safe package for Export, at a saving of at least five cents per hundred pounds in the process, package and freight, over the methods now in general use.

REQUIREMENTS.—First. A machine that will compress one hundred pounds of ordinary Bran into a package not to exceed fifteen (15) inches square, or two hundred pounds in the same ratio.

Second. That will, with the aid of an attendant and a reasonable amount of power, prepare for shipment one ton or more per hour.

Third. The inventor or owner of the successful machine must stipulate to sell it at a reasonable price, (to be agreed upon between the Executive Committee and himself,) to all members of the Association.

Fourth. The offer to remain open one year, the Committee to be at liberty to reject all devices, competing for this premium, that do not come up to the requirements of the trade.

SUGGESTIONS.—First. Other results being equal, the machine producing the best form for close "stowage," will have the preference.

Second. The package should be compressed in such a manner that when the covering is removed the Bran will assume its ordinary condition without manipulation.

Third. No machine or process, requiring the addition to Bran, of moisture or any foreign substance, will be entertained.

Fourth. It is desired that parties building, or with machines in model, intending to compete for the premium, will report progress at an early date.

For further particulars address,

S. H. SEAMANS, Sec'y



POOLE & HUNT'S Leffel Turbine Water Wheel

Made of best materials and in best style of workmanship.

Machine Molded Mill Gearing

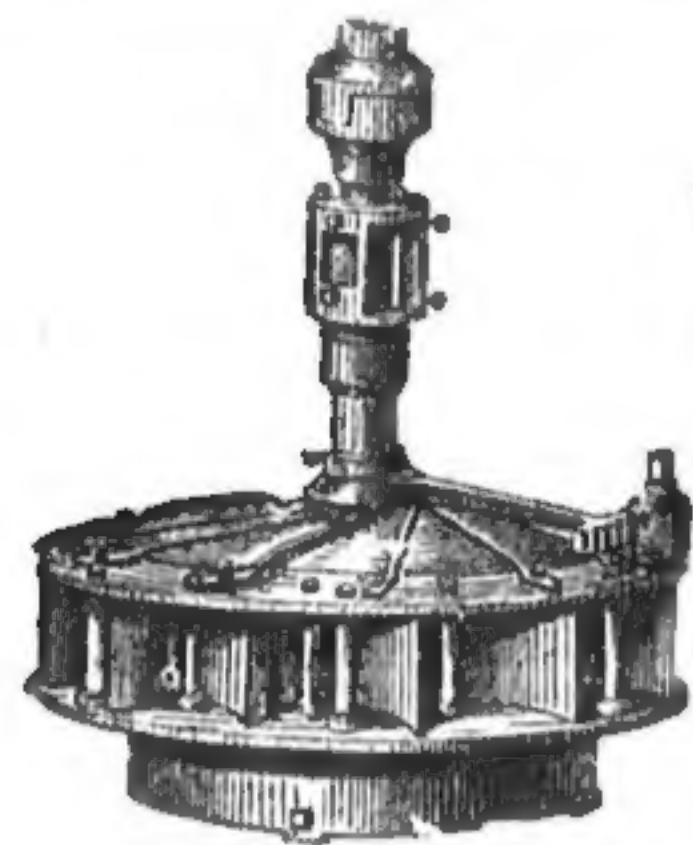
From 1 to 20 feet diameter, of any desired face or pitch molded by our own SPECIAL MACHINERY. Shafting, Pulleys, and Hangers, of the latest and most improved designs.

Mixers and General Outfit for Fertilizer Works.

Shipping Facilities the Best in all Directions.

POOLE & HUNT, Baltimore, Md.

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.
[Mention this Paper when you write to us.]



James Leffel's Improved WATER WHEEL.

NEW PRICE LIST FOR 1882.

The "OLD RELIABLE" with Improvements, making it the Most Perfect Turbine now in Use, comprising the Largest and the Smallest Wheels, under both the Highest and Lowest Heads used in this country. Our new Pocket Wheel Book for 1881 and 1882 sent free to those using water power. Address

JAMES LEFFEL & Co., Springfield, Ohio.
and 109 Liberty Street N. Y. City.

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Stout, Mills & Temple,

DAYTON, - - - OHIO.

MANUFACTURERS OF THE

American Turbine Water Wheel,

Best Quality French BURR MILLSTONES.

Sole Agents in Dayton for the sale of

DU FOUR & CO'S CELEBRATED BOLTING CLOTHS.

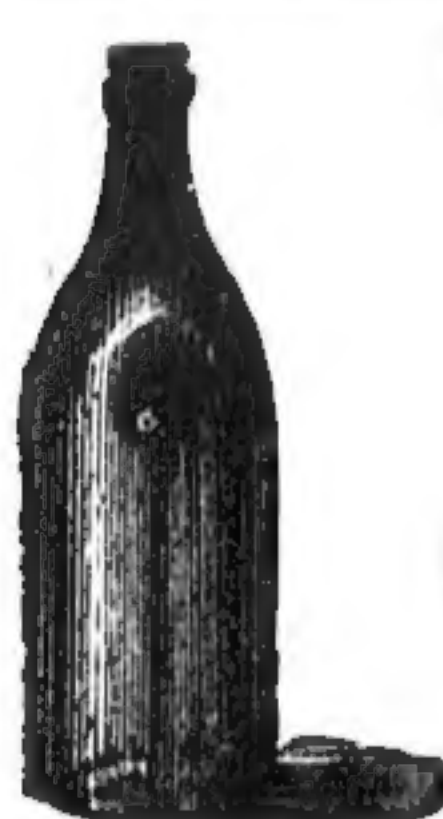
Flour and Paper Mill Machinery, Best Chilled or Porcelain Rolls for Crushing Wheat and Middlings and

GENERAL MILL FURNISHINGS.

The AMERICAN TURBINE, as recently improved, is unequalled in the power utilized from a given quantity of water, and is decidedly the best "PART GATE" Water Wheel ever known. It has also been otherwise greatly improved.

Large Illustrated Catalogue Sent Free on Application.

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BOTTLED BEER.

VOECHTING, SHAPE & CO.,

SOLE BOTTLEERS OF

JOSEPH SCHLITZ BREWING COMPANY'S

CELEBRATED MILWAUKEE LAGER BEER.

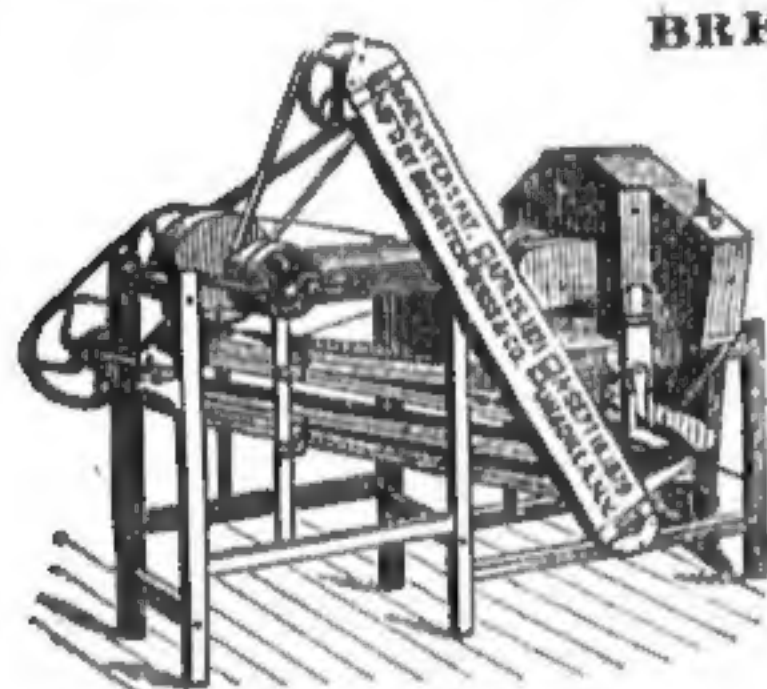
Cor. Second and Galena Streets,

MILWAUKEE, - - - WISCONSIN.

BOTTLEERS' SUPPLIES CONSTANTLY ON HAND.

[Parties corresponding will please state where they saw the advertisement.]

Buckwheat Refiners & Portable Mills.



BREWSTER'S CELEBRATED

Buckwheat Refiner

Is the only Machine whereby the greatest yields of

PURE, WHITE, SHARP FLOUR

can be obtained. The only reliable, practical and durable Machine IN THE WORLD.

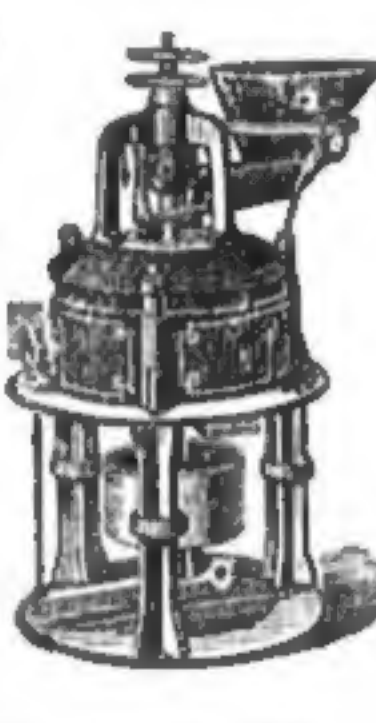
The Positive Adjustment

AND AUTOMATIC

Middlings Mill

Is strictly Self Protecting. The BEST ADJUSTMENT IN THE WORLD.

And the only PERFECT GRANULATOR, GRINDS COOL, SELF OILING, GREAT SAVING OF POWER, SIMPLICITY AND Durability Combined.



Satisfaction Guaranteed on all our Goods. Send for descriptive Circular, giving Prices, Sizes, Terms, etc.

BREWSTER BROS. & CO., Unadilla, N. Y.

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HARRIS-CORLISS ENGINE.

—BUILT BY—

WM. A. HARRIS, Providence, R. I.

Built under their original patents until their expiration. Improvements since added: "STOP MOTION ON REGULATOR," prevents engine from running away; "SELF-PACKING VALVE STEMS" (two patents), dispenses with four stuffing boxes; "RECESSED VALVE SEATS" prevent the wearing of shoulders on seats, and remedying a troublesome defect in other Corliss Engines; "BABBITT & HARRIS PISTON PACKING" (two patents). "DRIP COLLECTING DEVICES" (one patent). Also in "General Construction" and "Superior Workmanship."

The BEST and MOST WORKMANLIKE form of the Corliss Engine now in the market, substantially built, of the best materials, and in both Condensing and Non-Condensing forms.

The Condensing Engine will save from 25 to 35 per cent. of fuel, or add a like amount to the power and consume no more fuel. Small parts are made in quantities and inter-changeable, and kept in stock, for the convenience of repairs and to be placed on new work ordered at short notice.

NO OTHER engine builder has authority to state that he can furnish this engine. The ONLY WORKS where this engine can be obtained are at PROVIDENCE, R. I., no outside parties being licensed.

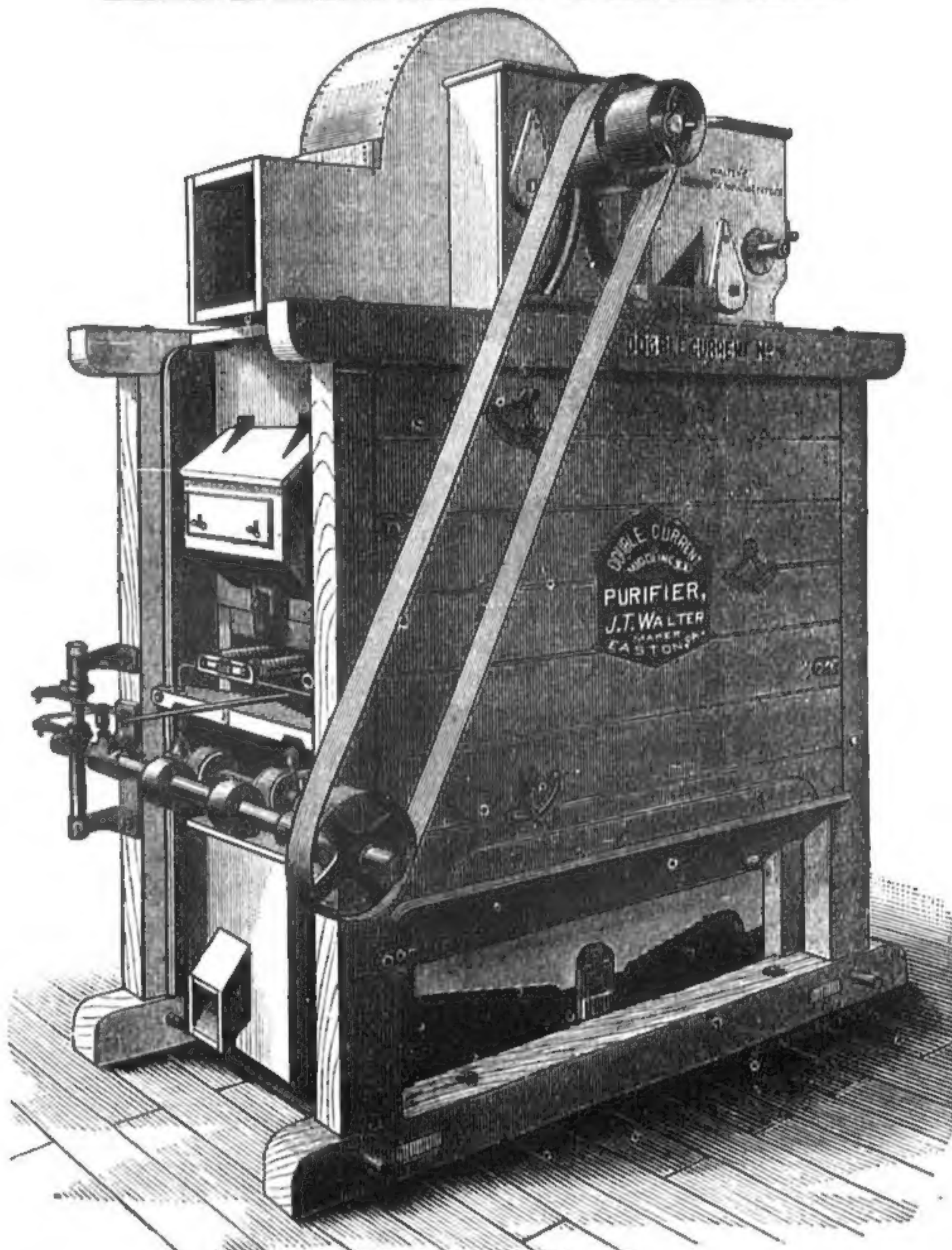
WM. A. HARRIS, Proprietor.

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THE SMALLEST IN THE WORLD!

J. T. WALTER'S DOUBLE CURRENT MIDDINGS PURIFIER.

GUARANTEED TO BE THE BEST IN THE WORLD.



LICENSED UNDER ALL CONFLICTING PATENTS.

WITH COLLINS' AUTOMATIC CLOTH CLEANER.

This Purifier has the following features, which are secured to it by patent, and which no other Purifier can use:

The Automatic Separating Feeder—The Process of Taking out the Heavy Specks between each number of Cloth—The Settling of the Heavy Dust and Lifting the Light Fuzz into the Dust Room.

Write for Circulars, Prices, etc. Address

J. T. WALTER,

EASTON, PA.

RICHMOND MANUFACTURING CO.

LOCKPORT, N. Y.,

—Manufacturers of—

RICHMOND'S CELEBRATED

Smut Machines,

Brush Machines,

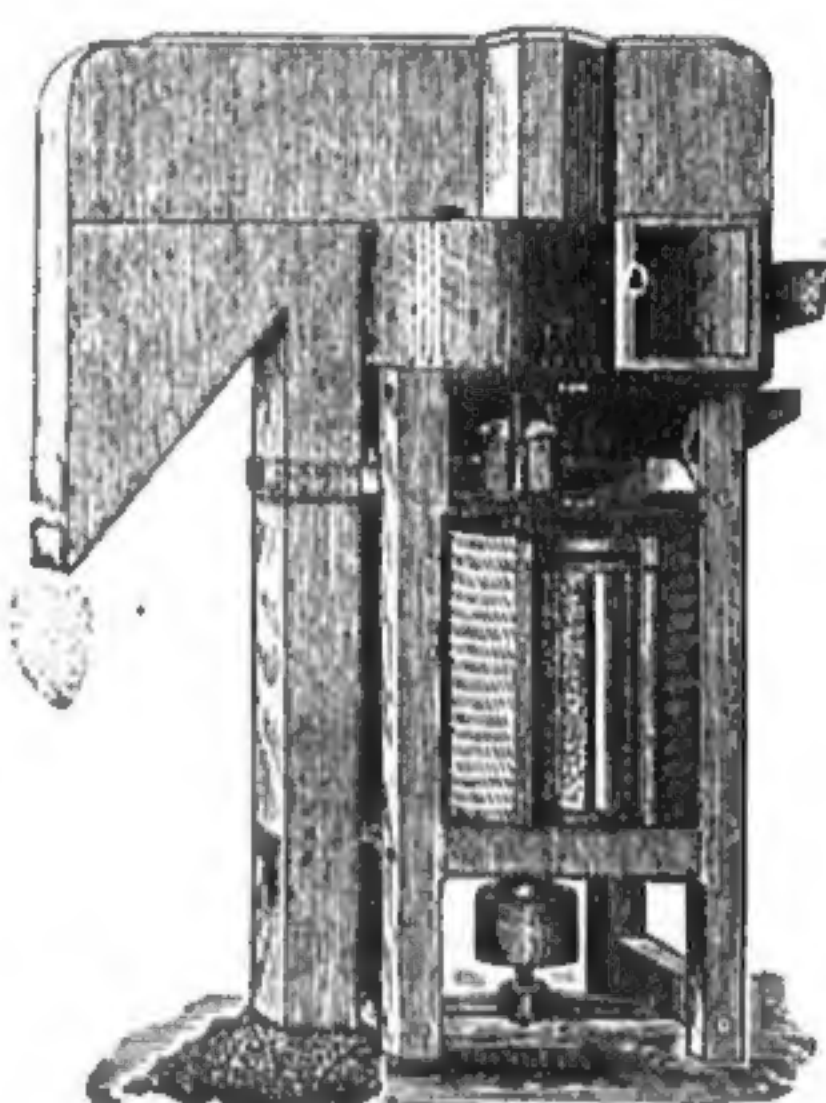
Grain Separators,

and Bran Dusters.

Nearly Two Hundred of these Machines are now in operation in the city of Minneapolis, Minn., alone, and more than sixty in the city of Milwaukee, Wis. They are also extensively used in many other sections, both on Winter and Spring Wheat.

SEND FOR DESCRIPTIVE CATALOGUE.

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Adjustable Brush Smut Machine.

THE MILLERS

MUTUAL INSURANCE COMPANY

OF WISCONSIN

is now issuing Policies of Insurance on all approved applications received so far. The Company has now sufficient members to allow it to increase the risks on any one Mill from \$1,000 to \$3,000.

All matters relating to Insurance should be addressed to

JOHN SCHUETTE, Sec., Manitowoc, Wis.

[Please mention the United States Miller when your write to us.]

CAWKER'S

AMERICAN FLOUR MILL DIRECTORY FOR 1882:

Is Now Ready for Delivery.

It has been compiled with the utmost care, and contains 22,844 Addresses

Of Flour Mill Owners in the UNITED STATES and CANADA.

It gives the Capacity and Motive Power of Mills wherever obtained.

MILL FURNISHERS, FLOUR BROKERS,

And Every one Desiring to Reach the Trade,
WILL FIND THIS WORK SIMPLY INVALUABLE.

PRICE, TEN DOLLARS PER COPY.

Address

THE UNITED STATES MILLER, Milwaukee, Wis.

Will be sent to any part of the world by Mail, POST-PAID, on Receipt of Price.

The Geo. T. Smith Middlings Purifier.

LOW IN PRICE,

Quantity and Quality of Work Considered.

Licensed Under all Patents

Owned by the Consolidated Middlings Purifier Company.

Simple, Easily Adjusted,

SPECIAL NOTICE.

For the more complete protection of our customers, and to put an end at once and forever to the demands for royalties by which they have recently been annoyed, we have purchased **ALL PATENTS** relating to Purifiers, lately owned by Huntley, Holcomb & Heine, including the well-known **MIDDLETON PATENT** and its several re-issues.

Every purchaser or owner of a Geo. T. Smith Purifier, in the past or future, owns the right to use it unmolested and unchallenged, and in this right we have, can and shall protect them.

Intending purchasers should give this notice attention, as it is of the utmost importance to them.

Adapted to all Systems

Of Milling, and every Grade and Condition of Middlings.

FOURTEEN SIZES

Single, Double and Special Machines.

Durable, Light Running.

Two Thousand SMITH PURIFIERS were Sold in 1881.

THE SMITH PURIFIER is in Use in every Milling Country in the World. More than Four Thousand are now running in the United States.

The Smith Purifier has a Positive and Effective Means of Cleaning the Silk of the Sieve. The Smith Purifier has Graded, Controllable Air Currents. It is Impossible to do Good and Economical Work without these Features.

OUR CLOTH TIGHTENER

Makes it both convenient and easy to keep the Silk always properly stretched.

OUR AUTOMATIC FEED

IS POSITIVELY SELF-ADJUSTING AND RELIABLE.

WRITE FOR DESCRIPTIVE PRICE LIST AND CIRCULAR TO

GEO. T. SMITH MIDLINGS PURIFIER CO., Jackson, Michigan.

[Please Mention this paper when you write to us.]

A NEW DEPARTURE

We are the Sole and Exclusive Licensees for this Country under the

MORRITZ MARTIN PATENTS

Centrifugal Flour Dressing Reels

And we are now prepared to fill orders for machines with latest improvements, which include

Our New Double Conveyors! New Cloth Fixing and Stretching Device!

New and Simplified Manner of Driving!

THE CENTRIFUGAL has more than **FOUR TIMES** the capacity of the ordinary reel, and will make clear flour and a clean finish on stock that cannot be treated in the common reel without loss, no matter how much silk it is passed over.

IT IS SPECIALLY ADAPTED to handling soft, reground material, full of light impurities, whether from rolls or stone. IT IS INDISPENSABLE to a CLOSE FINISH in any system of gradual reduction milling, and will improve the quality of the low grade flour at the same time it makes the offal cleaner.

IT MAKES A CLEAN SEPARATION on caked and flaky meal from smooth rolls, which no other style of reel can do. IT IS VASTLY SUPERIOR to the common reel for dusting middlings.

THEY CAN BE USED TO ADVANTAGE as a complete system of bolting, to the exclusion of the ordinary reel.

Over one Hundred sold in six weeks.

REFERENCE TO LEADING MILLERS IN THE UNITED STATES.

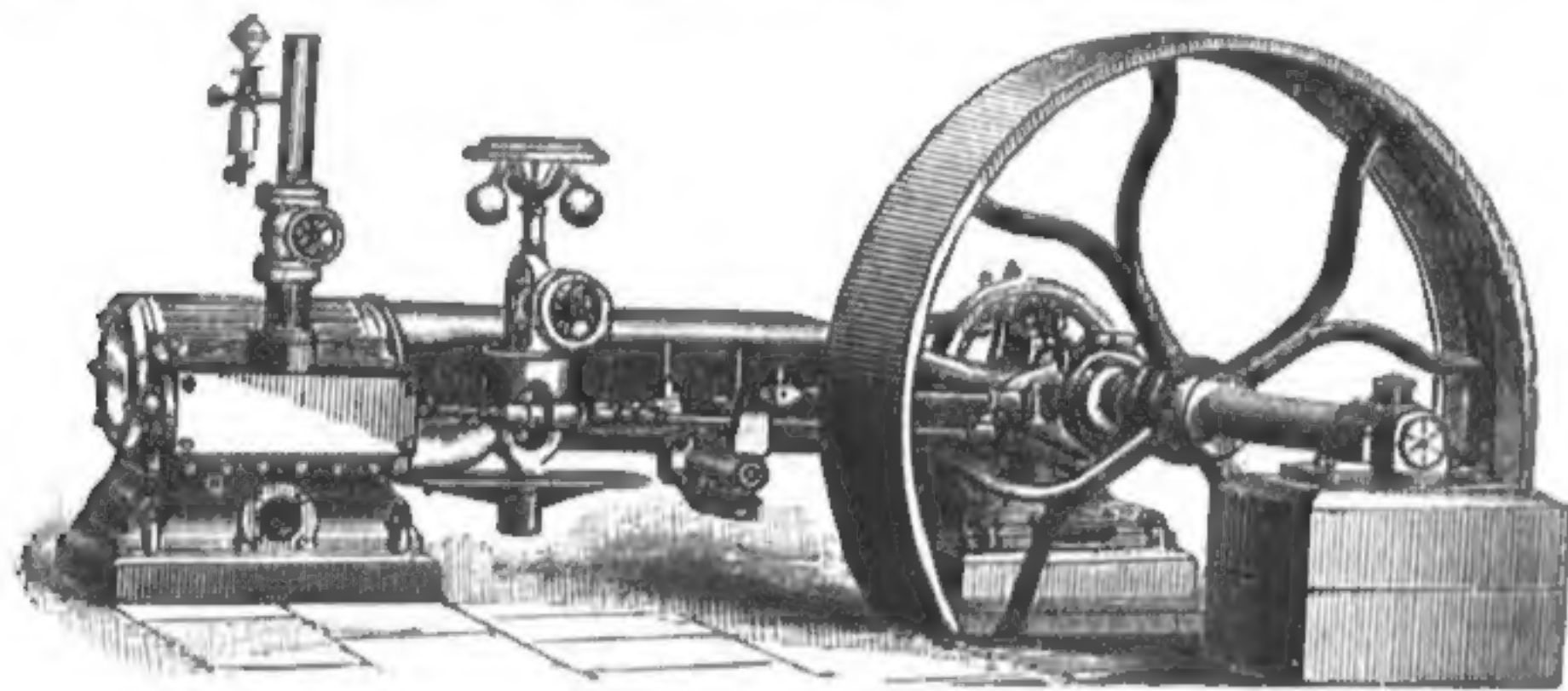
Write for descriptive circular and price list to

GEO. T. SMITH MIDLINGS PURIFIER CO., - Jackson Michigan.

[Please mention the United States Miller when you write to us.]

WOODBURY, BOOTH & PRYOR

ROCHESTER, N. Y.



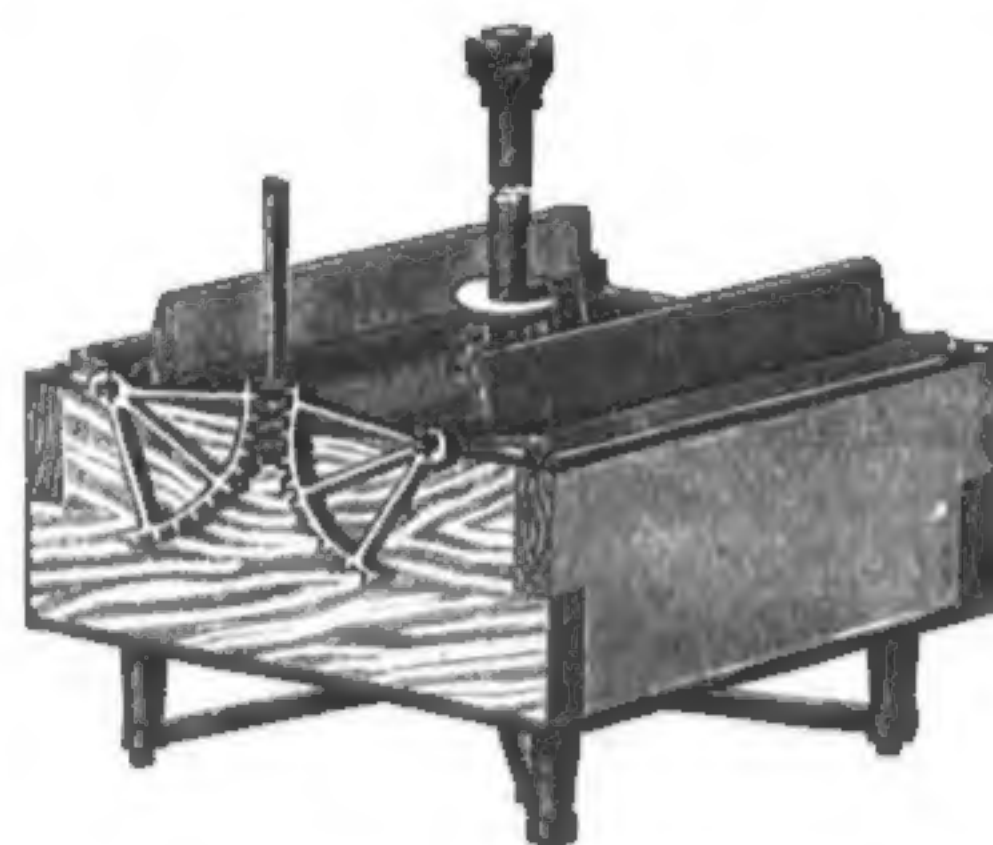
Manufacturers of

Automatic Cut-Off, Fixed Cut-Off, and Slide Valve

Steam Engines, Tubular Boilers.

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MARSHALL'S JONVAL TURBINE Water Wheel.



18 TO 60 INCH.

Round and square cases. Buckets and Rims of wrought iron. Cheap as the cheapest. Durable and economical in the use of water.

Send for circulars and prices to

G. M. MARSHALL & SON,

KILBOURN CITY, WIS.

Manufacturers of Power Corn Shellers, Etc.

[Mention this Paper when you write to us.]

BUDGETT, JAMES & BRANTH, Flour Merchants,

BRISTOL, ENGLAND.

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Orobio de Castro & Co.,
AMSTERDAM (Holland), Europe,
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AGENTS FOR
FLOUR and GRAIN.
American Correspondence Solicited,
Consignments Accepted.

Northwestern Mill Bucket Manufactory

810, 812, and 814 FLORIDA STREET.



Is furnishing Mills and Elevators in all parts of the country with their superior BUCKETS. They are UNEQUALLED for their SHAPE, STRENGTH and CHEAPNESS.

Leather, Rubber, Canvas Belting and Bolts at lowest market rates. We have no traveling agents. Sample Buckets sent on application. Large orders will receive liberal discounts. Send for sample order.

Address all inquiries and orders to
L. J. MUELLER, 197 Reed St., Milwaukee, Wis..

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STEEL CAR
Made entirely of STEEL. ONE MAN with it can easily move a loaded car. Will not slip on ice or grease.
PUSHER
Manufactured by
E. P. DWIGHT,
Dealer in Railroad Supplies, 407
Library St., Philadelphia, Pa.

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W. M. SHOOK,
Millwright and Contractor

Dealer in all kinds of Mill Furnishings.

PRACTICAL ROLLER MILL BUILDER,

Office and Shops 172 and 174 South Market Street,
CANTON, OHIO.



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Milling Made Profitable.

We build mills on any system known. We guarantee a saving of 25 per cent. on the cost of construction and room occupied by

BOLTING CHESTS.

We handle 45 bushels per hour on one reel successfully.
C. B. SLATER & CO.,
Blanchester, Ohio.

BIRGE & SMITH,
PRACTICAL
MILL WRIGHTS.

PLANS, SPECIFICATIONS & ESTIMATES

MADE FOR ALL KINDS OF

MILLWORK, MACHINERY, ETC.

Flour, Sawmill, Tanners' and Brewers' Machinery, and General Mill Furnishings,

Corner of East Water and Knapp Sts.,

MILWAUKEE, - - - WISCONSIN.

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C. F. MILLER,
MANSFIELD, OHIO.

Materials and Plans for Stone or Roller Mills. Roller Mills furnished complete with all necessary appliances, and the most perfect system of bolting for Mills of any desired capacity. Genuine Zurich Silk Bolting Cloths by the piece, or made up with Webbing. Warranted best quality.

[Mention this Paper when you write to us.]

GRAY'S GRADUAL REDUCTION MACHINES. FOR SMALL MILLS.

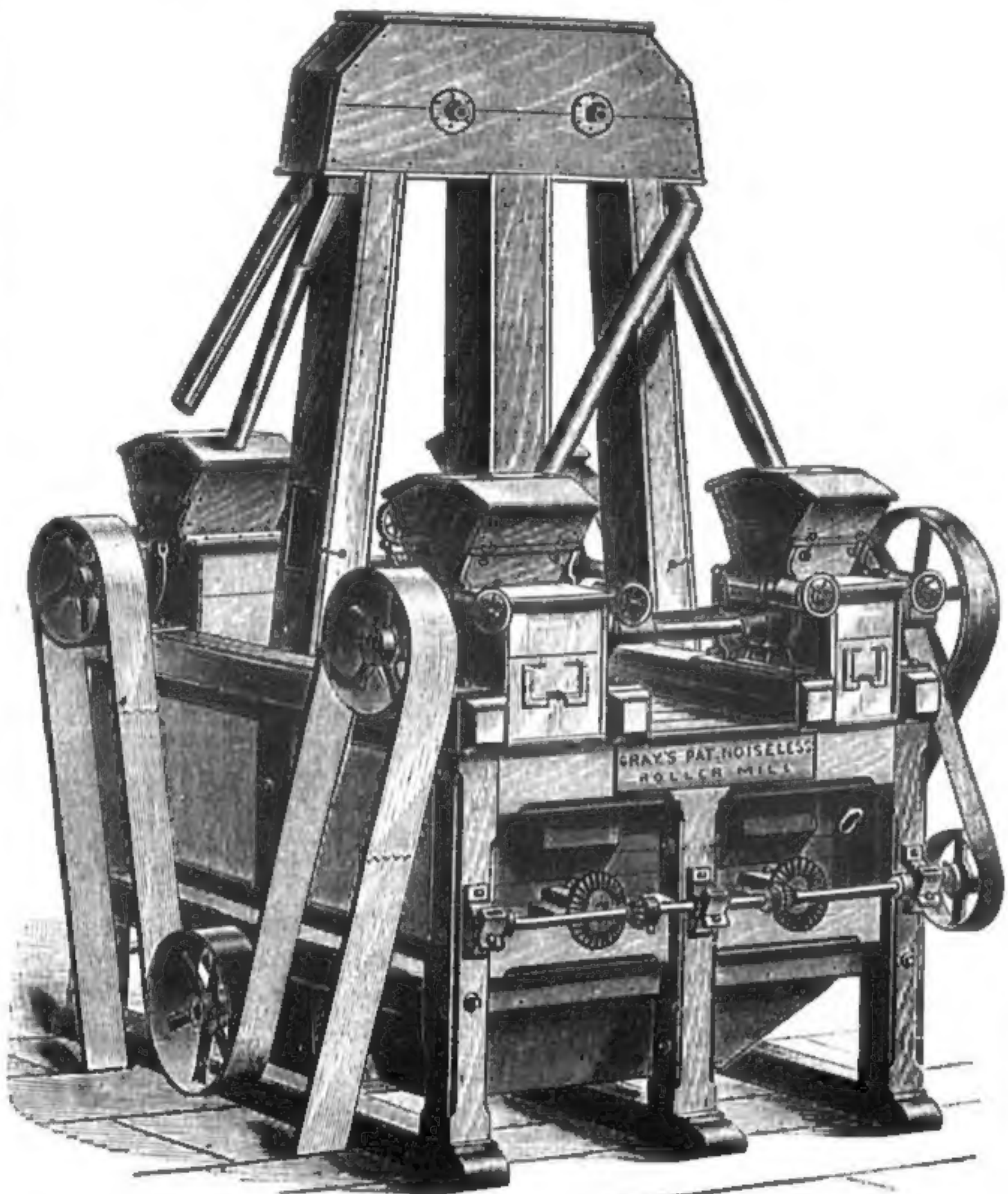
The accompanying cuts represent the NEW FOUR-BREAK REDUCTION MACHINES which Edw. P. Allis & Co., of Milwaukee, Wis., are now building—and which have been especially designed to meet the wants of that numerous class of millers whose mills are small, or who desire to supply only a limited trade, but who are forced by competition with larger mills, to put in improved machinery. The manufacturers say: "We are aware that numerous attempts have been made to furnish a machine or combination of machines which would enable a small mill to adopt the gradual reduction system of milling, but in all these attempts, the purpose has been to furnish something cheap, and which would sell without regard to the work which it was intended to perform. In nearly all the devices which have been contrived for this purpose, the aim of the manufacturer has been to find something which would take the place of the roller mill which is exclusively used in larger mills; and the cost of which has precluded its use in mills of less than seventy-five barrels capacity in twenty-four hours. So far no attempt to supersede the roller mill has been successful, and our long experience in designing and building mills on the roller system, has convinced us that for quality of work, capacity, minimum amount of power required, and general adaptability to its work, the roller mill is unsurpassed.

We have not attempted to deceive millers with promises to perform with so-called gradual reduction or break machines, results which in the best equipped mills are reached only by a carefully considered succession of machines, and each designed for its allotted place in the complicated process of gradual reduction or roller milling. Neither have we at any time lost sight of the fact, that for the great majority of millers, the system of roller milling, as used in the larger mills, was too expensive in first cost, and too complicated in detail to meet with general adoption; and we have kept steadily in view the purpose to furnish machinery suited to the needs, and which in first cost would be within the means of the smallest mills.

In the machine illustrated, we have not tried to devise some cheap substitute for roller mills, nor to a bridge our system of roller milling, which we have put in operation in by far the greater portion of the most successful roller mills in this country. The reductions are made on rolls, in every respect, except length, the same as those used in our Standard roller mills. They are the best Ansonia rolls, and are turned and corrugated, the same as the longer rolls, and not as in the cheap affairs which have been palmed off on unsuspecting millers as roller mills, with corrugations cast in, which soon wear out and cannot be replaced. The adjustments are the same as in the Standard Gray's Patent roller mills; and the only respect in which the roller mills in this machine differ from our standard machines, is in being placed on the frame which contains the scalping reels; the rolls, reels and elevators being combined in one machine, all parts of which are readily accessible, which can be placed on the grinding floor, without extending into the story above, and which requires only one driving belt. The machine is cheap,—not that it is slighted in any way, or that it lacks any single essential part of our standard roller mills, but because it is compact, simple, durable, and requires very little millwright work or machinery to place it in the mill. This will be readily seen from the following description:

The machine occupies a floor space of 7x8 feet, and from the floor to the top of the elevator heads is 10 feet 6 inches high. The frame

of the machine is solidly constructed of seasoned timber, strongly framed together with joint bolts. On the top of this frame, one at each corner are four corrugated roller mills, each with one pair of rolls, and provided with the same adjusting devices as Gray's Patent Noiseless Belt roller mills. Each pair of rolls is placed in a solid iron frame. The rolls for the first and second breaks are 9 inches in diameter and 8 inches long, and for the third and fourth breaks are 9 inches in diameter and 12 inches long. The corrugations are the same as in the Standard Gray's Patent roller mills for the same breaks. The manner of

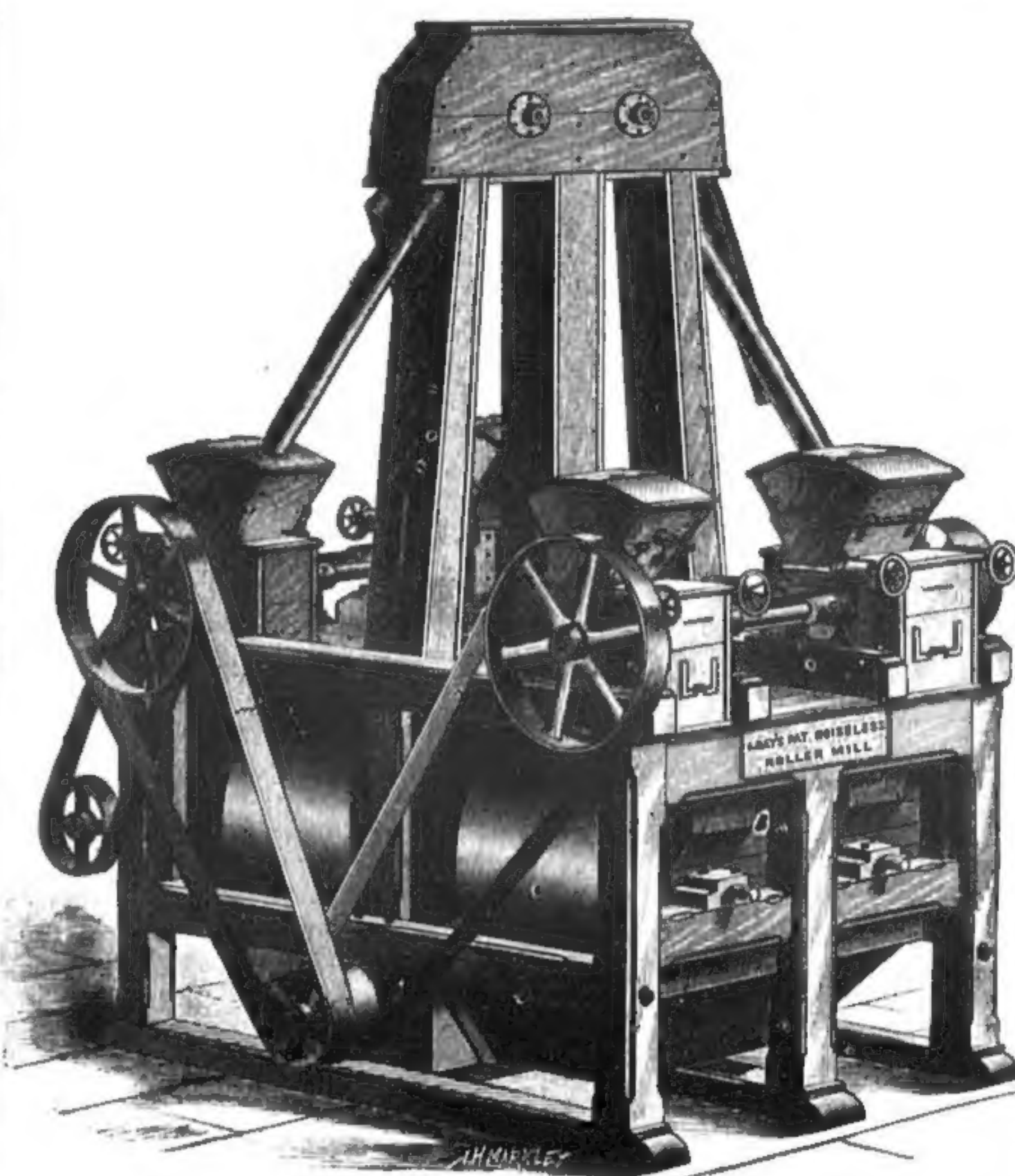


GRADUAL REDUCTION MACHINE. (DRIVING SIDE.)

driving the rolls is plainly shown by the cuts, and is the same as in our standard roller mills. The main driving shaft and pulley are below the floor, and the driving belt passes over the driving pulleys on fast rolls, and under the pulley on counter shaft, which extends through the machine, and from the opposite end of which the slow rolls are driven. The rolls are coupled to the correspond-

pair of rolls. The whole machine is self-contained and when once adjusted to its work requires very little attention. Under each scalping reel is a hopper from which the flour and middlings from the different breaks can be spouted separately or together, as desired. The machine contains all necessary elevators and is complete, ready to attach driving belt.

This machine is constructed so that it can be separated in halves, for convenience in shipping and locating in the mill. Any millwright who can set a purifier or put up a stand of elevators can place this machine in position, ready for work without any trouble.



GRADUAL REDUCTION MACHINE. (BACK SIDE.)

The very small amount of millwright work necessary to accommodate this machine to the work of the mill is greatly in its favor, but its great merit and excellence lie in its adaptability to any mill, however small. It can be used to make either three or four breaks, or if it is desired to carry the reduction system still further, five or six breaks may be made by adding one of our double 9 x 14 Standard

For new mills of seventy barrels capacity and under, on the complete roller system, we have designed a somewhat similar machine, which is shown in the accompanying illustration, combining two of our Standard 9 x 14 inch double or four-roller mills, containing smooth iron and porcelain rolls with four centrifugal reels and the necessary elevators. Each centrifugal reel is the same in every respect as the centrifugal reels built by us and is provided with double conveyors. The four Reels are placed two on each shaft in solid frames, and the roller mills are placed on a solid frame above the reels. Either

one double 9 x 14 inch roller mill and two centrifugal reels, or four reels and two double roller mills can be used. The former is a very convenient machine for bran and tailings, and used in connection with the Four-break machine and the machine with two double roller mills and four centrifugal reels forms a very perfect arrangement for a small but complete roller mill. A still cheaper and simpler arrangement can be had by using the four-break machine and the machine with two double roller mills and the four centrifugal reels."

NEW PRINCIPLE IN RICE MILLING.—The Sugar Bowl calls the attention of rice planters to an invention which introduces a new principle in rice milling. This invention consists in substituting for the ver-

tical movement in common use, whereby rice is decorticated by a species of pounding, a rotary motion wherewith the grains of rough rice are decorticated and polished through a simple friction with each other. The object sought is to avoid the breakage of grains and the pulverization of the husks, which has cost so much time in winnowing and separation of the broken grains.

BREADSTUFF EXPORTS.

The UNITED STATES MILLER gleans the following facts from official sources:

The value of exports of breadstuffs during January, 1883, was \$11,977,524, against \$15,874,286 in Jan. 1882.

The value of exports of breadstuffs for seven months ending Jan. 31, 1883, was \$133,696,842, against \$124,121,439 for corresponding time one year ago.

During January, 1883, 6,989,077 bushels of wheat, valued at \$7,632,102, and 935,486 barrels of flour, valued at \$5,293,823, was exported.

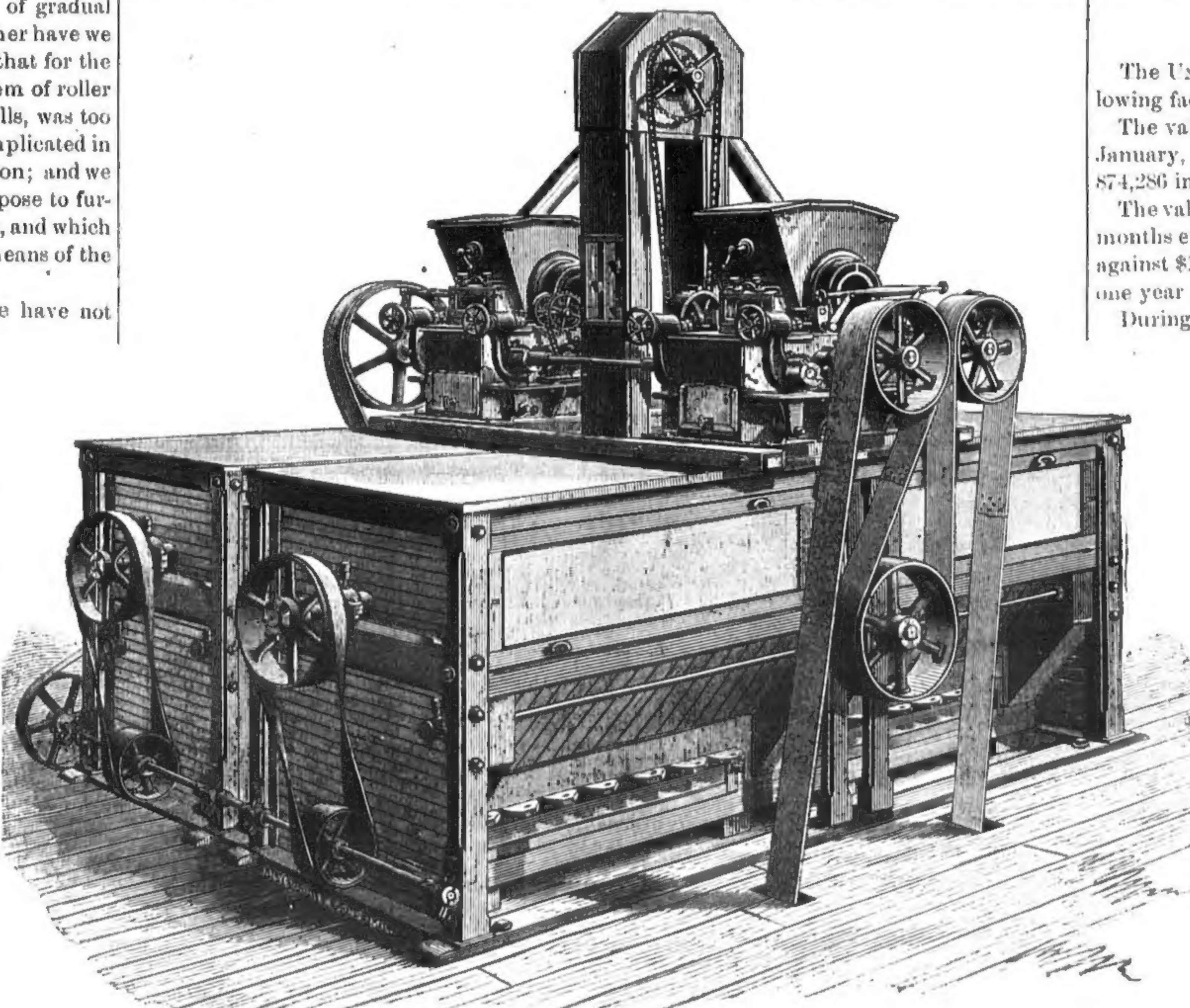
During January, 1882, 6,772,511 bushels of wheat, valued at \$7,652,839, and 482,731 barrels of flour, valued at \$2,935,541, were exported.

During 7 months ending Jan. 31, 1883, 82,618,153 bushels of wheat, valued at \$92,457,200, and 5,469,470 barrels of flour, worth \$32,930,945, were exported.

During 7 months ending Jan. 31, 1882, \$66,731,515 bushels of wheat, worth \$79,690,312, and 3,326,975 barrels of flour, worth \$3,326,975, were exported.

The foregoing figures show an increase of exports in the seven months ending January 31, 1883, over corresponding time ending Jan. 31, 1882, of 15,886,638 bushels of wheat and 2,142,495 barrels of flour. The proportion of shipments of wheat to flour in 1883 is as 1 to 0.3. While in 1882 it

was as 1 to 0.2, a condition of export trade extremely gratifying to millers in the United States. We trust and believe that future figures will show an increase in the percentage of exports of flour over wheat. Great efforts are now being made to find a bran compressing machine, suitable for use in flour mills of any size that will compress bran to a fraction of its natural bulk for the purpose of cheap transportation abroad. If this problem is successfully solved, and we think it will be, the exports of bran and feed-stuffs will be increased beyond all present calculation, and the fortunate inventor of the successful machine will not only win a fortune, but do his country an immense service.



COMBINED REDUCTION MACHINE FOR MIDDINGS. (DRIVING SIDE.)

ing ones on the opposite side of the machine by short shafts, forming an universal joint, thus permitting the adjustment of each pair of rolls without interfering with the others. The rolls are just the right height from the floor to be easily adjusted, and to permit the miller, while standing on the floor, to feel of the chop and examine the work.

In the body of the machine there are four scalping reels of improved construction. These reels are placed two on each shaft and driven by cross shaft and gearing, as shown in the cut. The reels discharge at the center into elevators, which elevate the tailings from each reel to the next succeeding

roller mills for bran and tailings. In small mills using two or three run of buhrs, one or two run can be retained to reduce middlings. In most mills the bolting and cleaning machinery will need but little addition, and but little new iron work, belting, etc., will be required. All that is of value in an old mill can be retained, and that which is actually necessary to insure good work can be added with the least expense consistent with doing good work. Another important advantage, where the power is limited or the cost of fuel an important item, is the small amount of power required to make the reductions on rolls instead of buhrs.

NEWS.

THOS. STRAUSS at Allentown, Pa., has ordered a Stevens roller mill from the John T. Noye Mfg. Co., of Buffalo.

J. L. HOUGH & SON, Delaware, O., have ordered additional machinery from the Case Mfg. Co., Columbus, O.

J. H. McQUOWN, of Kirkwood, Ill., has ordered a Stevens roller mill from The Jno. T. Noye Mfg. Co. of Buffalo.

MATTHEWSON & Co., St. Louis, Mo., have ordered one Little Giant reduction machine. from the Case Mfg. Co., Columbus, O.

ARNOLD VERSTIGAN, of Little Chute, Wis., has ordered a Stevens roller mill of The John T. Noye Mfg. Co. of Buffalo.

WM. FLEUMER, of Mt. Clemens, Mich., has ordered another Stevens roller mill from the Jno. T. Noye Mfg. Co., Buffalo.

SMITH BROS., Union City, Ind., have placed their order with the Case Mfg. Co., Columbus, O., for a line of breaks and rolls.

FERDINAND LARBS, of Oshkosh, Wis., will put in a Stevens Roller Mill, furnished by The Jno. T. Noye Mfg. Co., of Buffalo.

EIGHT pairs of the Stevens rolls have been ordered by Kaune Bros. of Breese, Ill., of The Jno. T. Noye Mfg. Co., of Buffalo.

ERITCH BROS. & BOCH, of Macungie, Pa., have ordered of the Jno. T. Noye Mfg. Co., of Buffalo, another Stevens roller mill.

W. H. STONE & Co., Morris, Minn., have just ordered of Stout, Mills & Temple, Dayton, O., two double Livingston roller mills.

BARRETT & SON, Spring Valley, O., have just ordered of Stout, Mills & Temple, Dayton, O., two pairs Livingston smooth rolls.

HIGBEE & Co., of Bellevue, Ohio, have ordered two additional pairs of Stevens Rolls from The Jno. T. Noye Mfg. Co., of Buffalo.

LEONARD DODGE, of Williamsville, N. Y., is about to put in another Stevens roller mill. The Noye Co., of Buffalo, have the order.

B. ROBINSON has ordered for his mill at Union Springs, N. Y., two Stevens roller mills. The Noye Mfg. Co., of Buffalo, supply them.

Six pairs of Stevens rolls have been ordered from The J. T. Noye Mfg. Co., of Buffalo, for the Shulze Milling Co., of Okawville, Ill.

C. F. JONES & Co., of Mt. Blanchard, Ohio, will put in two pairs of Stevens rolls, furnished by The Jno. T. Noye Mfg. Co., of Buffalo.

G. Q. MOON & Co., of Binghamton, N. Y., have placed an order with the Jno. T. Noye Mfg. Co., of Buffalo, for six Stevens Roller Mills.

BARR BROS. & Co., have ordered one pair of 9 x 18 Case smooth rolls, with patent automatic feed from the Case Mfg. Co., Columbus, O.

L. KETCHAM & BROS. mill at Mt. Pleasant, Iowa, is being remodeled to the roller system, using Nordyke & Marmon Co.'s rolls for this purpose.

MEANER & VAN VOORHIS, Eldora, Iowa, have put in one pair smooth rolls, with patent automatic feed from the Case Mfg. Co., Columbus, O.

Two pairs of Stevens Rolls will be put in by the Bloomington Mill Co., of Bloomington, Ill. The Jno. T. Noye Mfg. Co., of Buffalo, have the order.

STOUT, MILLS & TEMPLE, Dayton, O., have received orders for about forty sets of Livingston rolls, from Pray Mfg. Co., Minneapolis, Minn., the past two weeks.

THE mills of Col. Woodford of Weston, W. Va., will be improved by the addition of roller mill machinery made by Nordyke & Marmon Co., of Indianapolis, Ind.

A three-run steam mill is being built at North Bend, Neb., by Wm. Tisley, Jr., who is having his machinery made by Nordyke & Marmon Co., of Indianapolis, Ind.

JAMES & TOWNSEND, of North Fork, Tenn., is building a three-run water power mill, using machinery which was made by Nordyke & Marmon Co., of Indianapolis, Ind.

BALLARD & BALLARD, of Louisville, Ky., proprietors of the Linden Mills in that city, have placed their order with The Jno. T. Noye Mfg. Co., for two pairs of Stevens Rolls.

STOUT, MILLS & TEMPLE, Dayton, O., will furnish 21 double sets Livingston mills, for L. Day & Son's Fallside Mill, Minneapolis, Minn., having overcome the sharpest competition.

STOUT, MILLS & TEMPLE, Dayton, O., have sold Hascell, Cornell & Guale, Toledo, Ohio, a six-break Gilbert combined mill, 9 x 24 inch rolls, and two double sets Livingston rolls.

DAWSON BROS., of Pontiac, Mich., are remodeling their mill to the roller system, using Odell rolls for reductions, but the other machinery is made by Nordyke & Marmon Co., Indianapolis, Ind.

LUCCAS & AIKEN, Uhricksville, O., are changing to the gradual reduction system, and have placed their order with the Case Mfg. Co., Columbus, O., for a full line of breaks, rolls, purifiers, scalping reels, &c.

McHUGH & CLARK, Vassar, Mich., are putting up a 200-bbl. mill on the Case gradual reduction system, and have placed their order for breaks, rolls, purifiers, scalping reels &c., with the Case Mfg. Co., Columbus, O.

STERN & Wohlval (formerly New Era Milling Co.) are putting in the Prinz Dust Collector, manufactured by the Milwaukee Dust Collector Mfg. Co., using no others, and dispensing with the old dust-room entirely.

THE Victoria Flour Mill Co., Alex. H. Smith, Secretary, St. Louis, Mo., will largely increase their capacity, and to that end have ordered from The Jno. T. Noye Mfg. Co., of Buffalo, N. Y., twenty-two pairs of Stevens Rolls.

THE Crocker Flisk Co.'s and E. V. White & Co.'s mills, at Minneapolis, are operating the Prinz Pat. Dust Collectors, manufactured by the Milwaukee Dust Collector Mfg. Co., using no other, and dispensing with the old dust-room entirely.

SMITH, LAWTHER & Co., are erecting a new mill at Nickerson, Reno Co., Kan., and have placed their order with the Case Mfg. Co., Columbus, O., for breaks, rolls, purifiers, scalping reels &c., for a full gradual reduction mill on the Case system.

THE Kehlor Milling Co., of St. Louis, started up three or four months ago, is using 18 Prinz Dust Collectors, manufactured by the Milwaukee Dust Collector Mfg. Co. They use no other devices. They say the machines work like a "charm."

GILBERT & BARRETT, the well-known milling firm of Geneva, Wis., have decided upon the erection of a handsome new 125 barrel roller mill, and their contract for supplying the entire job has been awarded to Nordyke & Marmon Co., of Indianapolis, Ind.

WILLIAMS, WORDEN & Co. are making alterations in their mill at Avon, Ohio, and will put in six pairs of the Stevens

non-cutting roller mills. The G. R. Gale Mfg. Co. of Cleveland, Ohio, have the contract, and The John T. Noye Mfg. Co., of Buffalo, will furnish the rolls.

A handsome engraving of the Davis & Faucett mill, situated in the heart of St. Joseph, Mo., will soon appear in this paper. The handsome machinery is being set up by a large number of millwrights under charge of Col. Winn. The mill contains 40 pairs of rolls and is driven by a 250

A car load of Livingston roller mills, recently shipped Carson & Rand, Eau Galle, Wis., by Stout, Mills & Temple, Dayton, O., was wrecked between Chicago and Eau Galle. By direction of R. R. Co., the above firm made a duplicate shipment, causing little or no delay in construction of consignees' mill.

A recent visit to the mammoth mill-furnishing establishment of Nordyke & Marmon Co., at Indianapolis, Ind., shows them to be teeming with activity. A small army of over 350 men is industriously engaged in getting out a large number of orders. Owing to their splendid facilities many of the other mill-furnishing houses get their supplies from this house.

CHRISTIAN BROS. & Co. and Leonard Day & Co. (Palisade Mills), Minneapolis, are being furnished with the Prinz Pat. Dust Collectors, manufactured by the Milwaukee Dust Collector Mfg. Co., throughout their mills, dispensing with the dust-room and other dust catching devices, horse power automatic engine. The machinery of this mill was made by Nordyke & Marmon Co., of Indianapolis, Ind.

IN a recent letter from the ATLAS ENGINE WORKS, Indianapolis, Ind., they say: We have contracted with Messrs. Morrow, Hamby & Co., lessees of the State Penitentiary at Rusk, Texas, to furnish the new machinery required for their shops, consisting of two Corliss engines, one slide-valve engine, five boilers, steam pumps, heaters and complete pipe connections. Our business is excellent, and the prospects look very bright for the coming season's trade.

STOUT, MILLS & TEMPLE, Dayton, O., the old reliable mill furnishers and manufacturers of the Gilbert combined and Livingston roller mills, have recently made an important addition to their large works, in the shape of a building specially adapted for building bolting chests. In it they set up complete all sizes chests, from one and two reel to ten reel. The building is built adjoining the carpenter shop, and is 20 x 40 ft., and 35 ft. high. It is built with galleries around it, to enable workmen to get at upper part of chests advantageously. Having all the latest improved wood-working machinery, they are enabled to put these chests together in the very best manner, and at a low figure. The chests are set up complete before leaving the works, and all parts being marked, they can be set up very easily and quickly in the mill.

FOR SALE.

A good two-run flour mill. Water power. Building 32 by 56 feet. Good dwelling and 20 acres land, with plenty timber. Poor health is my reason for selling. Mill is located seven miles from county seat in a good wheat-growing section. Address

A. E. ADAMS,
Alma, Harland Co., Neb.

THE PAIGE MANUF'G CO.

PAINESVILLE, OHIO,

MANUFACTURERS OF

Boilers, Engines, Flouring Mill and Elevator Machinery.

DEALERS IN

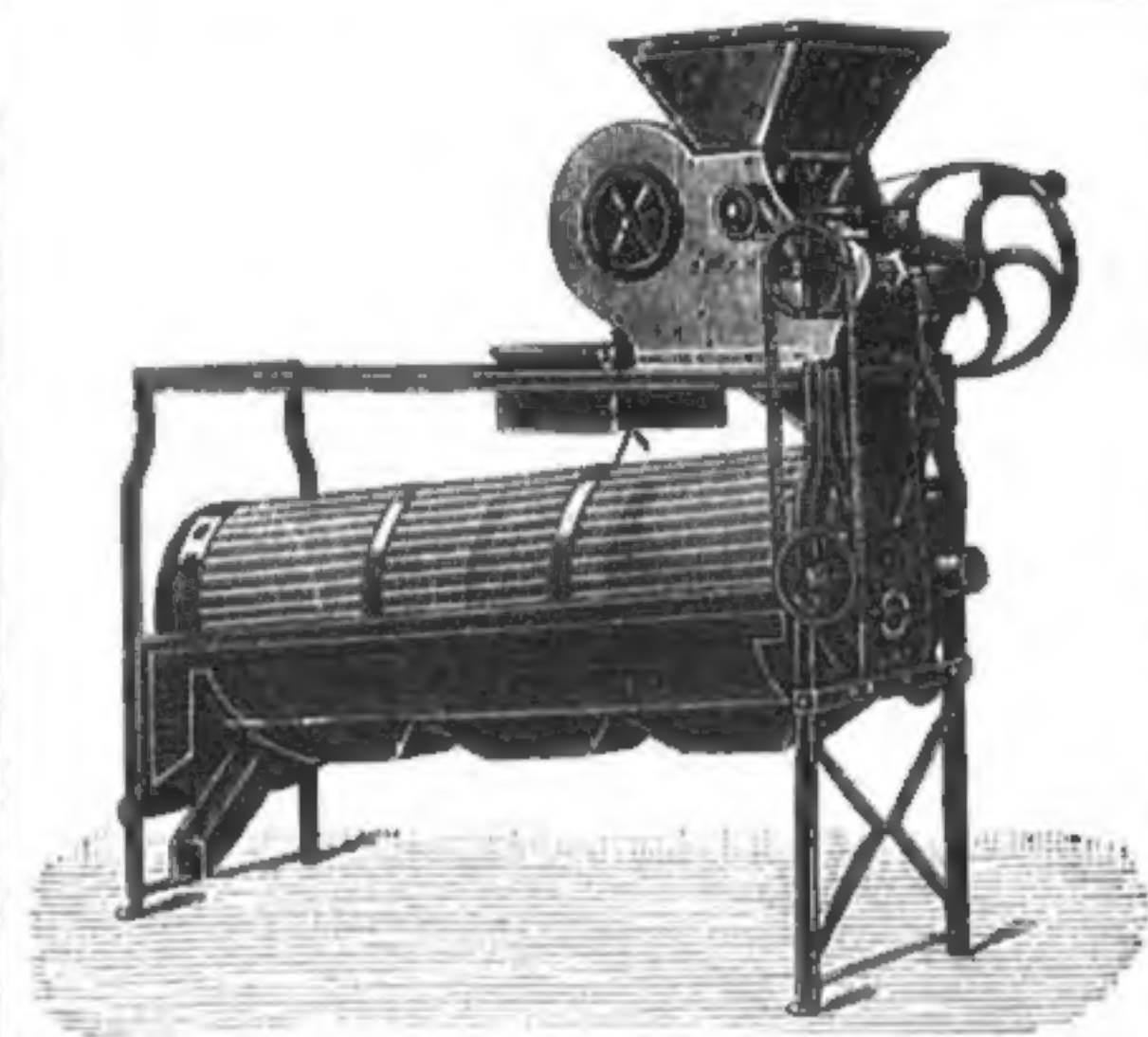
ROLLER MILLS AND MILL FURNISHINGS

OF EVERY DESCRIPTION.

Millwrights, Builders and Contractors, send for our Descriptive Machinery Catalogue of 1883.

20, 22 and 24 St. Clair St., Painesville, Ohio.

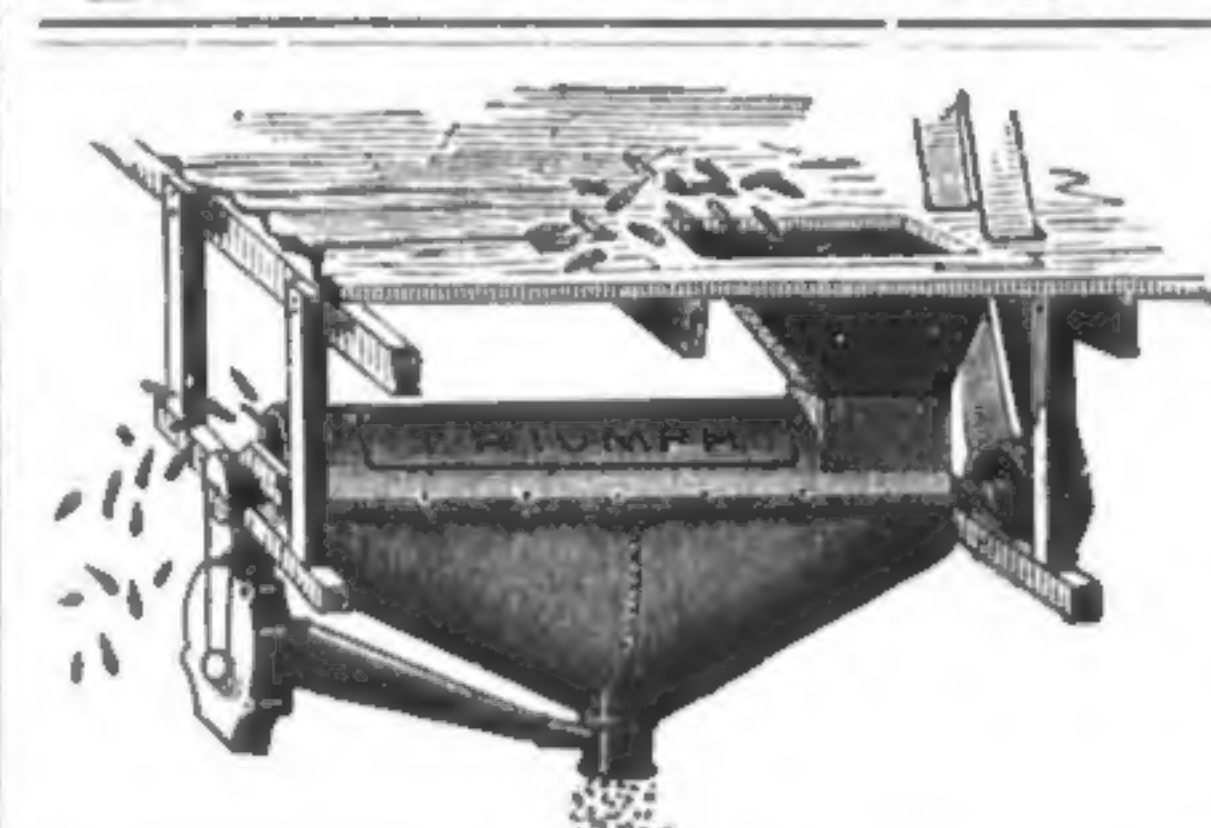
Attention, Manufacturers:



WILH. KRUGER, Partner of KALKER TRIEUR-FABRIK & FABRIK gelochter BLECHE, MAYER & COMP. (Manufactory of Assorting Machines and of Perforated Tin, at Kalk, near Cologne (Rhenish Prussia), has secured, on July 11, 1882, under No. 260,999, a Patent for the United States of America for a *Trieur* (Grain cleaning and Assorting Machine).

The *Trieurs* of the firm Mayer & Co., with whom W. Kruger has been in partnership for many years, are the best in the world, and more than 30,000 *Trieurs* (Cockle Separators) have been delivered by them all over the world. It is just this machine of W. Kruger, patented for North America, which has received the first prize at the International contest, while forty-two *Trieurs* of all states of Europe were competitors. For the better explanation of the American patent, the Kalker Trieur Manufactory & Manufactory of Perforated Tin, Mayer & Co., at Kalk, near Cologne, desires to enter into connection with a reliable manufactory of machines in the United States of America. All offers of manufactories of machines should be addressed directly to

KALKER TRIEUR-FABRIK & FABRIK gelochter BLECHE, MAYER & COMP.,
At Kalk, near Cologne (Rhenish Prussia), Germany.



5300
'Triumph' Power Corn Shellers
IN USE.
Send for Descriptive Circular and Testimonials.
ADDRESS
PAIGE MANUFACTURING CO.,
20, 22 and 24 St. Clair St., Painesville, O.

STEEL
CASTINGS
Works, CHESTER, PA.
(Mention this paper when you write us.)

FROM 1-4 to 10,000 LBS. WEIGHT.
True to pattern, sound and solid, of unequalled strength, toughness and durability.
An invaluable substitute for forgings or cast iron requiring threefold strength.
Gearing of all kinds, Shoes, Dies, Hammer-Heads, Cross-Heads, for Locomotives, etc.
15,000 Crank Shafts and 10,000 Gear Wheels of this steel now running prove its superiority over all other steel castings.
CRANK SHAFTS, CROSS-HEADS and GEARING, specialties.
Circulars and price list free. Address,
CHESTER STEEL CASTINGS CO.,
407 LIBERTY ST., PHILADELPHIA, U. S. A.

GARDEN CITY

1st Break Machine

—AND—

BRUSH SCALPER

—WITH—

ASPIRATOR.

To Millers Operating Buhr Mills.

We guarantee to improve the grade of your flour by the use of our 1st BREAK MACHINE and BRUSH SCALPER. Putting in these machines will necessitate no other changes in the present arrangements in your mills.

To Millers Operating Roller Mills.

By the use of our 1st BREAK MACHINE and BRUSH SCALPER you can positively remove all seam impurities and germs after the first break, thereby obtaining better results.

Write for descriptive catalogue and prices.

PRICES REDUCED!

IMPROVED GARDEN CITY

Middling Purifier

—WITH—

Traveling Cloth Cleaners.

Our improved Purifier has every device requisite to make it perfect, and every one in use is giving the greatest satisfaction to the users. The Cloth Cleaners are guaranteed to clean the cloth better than is done on any other purifier.

Over 4000 Garden City Purifiers in use, nearly 800 of which are the Improved Machine.

The Best and now the Cheapest. Write for circulars and price list.

We are agents for the

BODMER

BOLTING CLOTH

Which has long been acknowledged as the best made, and which has lately been further improved, making it now beyond competition. We make it up in the best style at short notice. Send for prices and samples.

Garden City Mill Furnishing Company,

CHICAGO, ILL.

(Mention this paper when you write to us.)



HENRY HERZER,
Manufacturer
and
Dresser
—OF—

MILL PICKS!

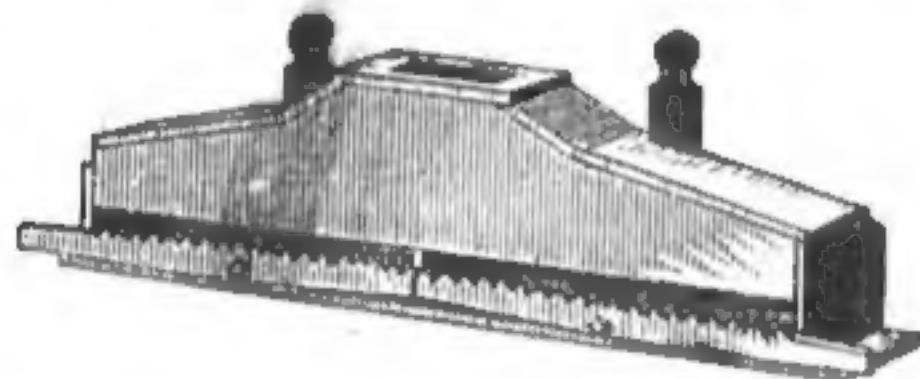
NO. 456 ON THE CANAL,
MILWAUKEE, WIS.

I have had twenty-two years experience in the manufacture and dressing of Mill Picks, and can and do make as fine Mill Picks as can be made by anybody anywhere. I use only the best imported steel for the purpose. My work is known by millers throughout the country, and is pronounced to be first class by the very best judges.

We have hundreds of the most gratifying testimonials from nearly all the States. We solicit your orders and guarantee satisfaction. Address as above.

[Please mention this paper when you write.]

The Perfect Feed Box



It insures a perfectly even distribution of the middlings over the entire width of the cloth. Every miller will appreciate this. Fits all purifiers. Address,

CASE MANUFACTURING CO.,
COLUMBUS, OHIO

W. E. CATLIN & CO., 68 LAKE ST., CHICAGO, ILL.
AGENTS.

[Please mention this paper when you write to us.]

BOLTING CLOTH!

Don't order your Cloth until you have conferred with us; it will pay you both in point of quality and price. We are prepared with special facilities for this work. Write us before you order. Address,

CASE MFG. CO.,

Office & Factory; Columbus, Ohio

Fifth St., North of Waughten.

Jonathan Mills
TRIPLE CENTRIFUGAL REEL
JON. MILLS' PHOENIX ROLLER MILL

Phoenix Foundry & Machine Works

TERRE HAUTE, INDIANA, U. S. A.
MANUFACTURERS AND MILL BUILDERS.
JONATHAN MILLS, General Manager.

OUR OWN MANUFACTURES.
UNEQUALLED FOR QUALITY, STYLE AND FINISH.
Engines, Shafting, Pulleys, Gearing, Bolting-Chests, Hurst-Frames, and all Flour Mill Iron and Wood Work.

OUR STANDARD MACHINES.
Jonathan Mills Phoenix Rolls. Single or Double, Smooth or Corrugated. Positive hemp rope drive. In every feature an improvement over all competitors. No running together of Rolls. Feed Rolls dispensed with.

Phoenix Reduction Machine. SIX BREAKS in one substantial iron frame. Compact, durable, light-running, with six Centrifugal Reels—one for each break. An aspiration on each reduction. The most complete concentrated mill ever invented. Indispensable for mills having a capacity of from one to ten barrels per hour.

Centrifugal Bolting Reels. Single, Double or Triple. Bristling with Improvements. No Oil ever Required on any of above Machines.

Jonathan Mills Gradual Reduction and Degerminating Machines. Of World-wide Fame.

The Finest Line of Machines in the World.
Orders Promptly Filled FOR LION BRAND BOLTING CLOTH, by the Piece, cut or made up to fit any size reel.

We will furnish you anything required at reasonable prices. We keep every kind of Furnishing in stock.

Plans and Programmes Furnished, and complete Mills Built and Started on the Gradual Reduction, Stones or Roller systems or a combination of any.

Write for Information.

JONATHAN MILLS
DISK REDUCTION MILL
JONATHAN MILLS
PHOENIX REDUCTION MILL

ROPP'S COMPUTATION DIARY.

Embodies everything in Figures that is PRACTICAL, and ADAPTED to the wants of Farmers, Mechanics and Business Men; and by ingenious and original systems, makes the art of computation EASY and SIMPLE, even for a child. It gives the CORRECT answer to nearly 100,000 BUSINESS examples of almost every conceivable kind, and is worth its weight in gold to every person not thoroughly versed in the science of numbers. In selling GRAIN of any kind, it will tell how many bushels and pounds are in the load and how much it will come to, without making a single calculation. In like manner, it shows the value of Cattle, Hogs, Hay, Coal, Cotton, Wool, Butter, Eggs and all kinds of Merchandise. In computing INTEREST and Wages, it has no equal, either in easy methods or convenient tables. It shows, at a glance, the accurate measurements of all kinds of Lumber, Logs, Cisterns, Tanks, Barrels, Granaries, Wagon beds, Corn cribs, Cordwood, Hay, Lands, and Carpenters', Plasterers' and Bricklayers' work, etc. It, however, not only tells results, but also TEACHES entirely NEW, SHORT and PRACTICAL RULES and Methods for RAPID commercial calculations, which will prove highly interesting to every student of this great and useful science. It is neatly printed on fine tinted paper, elegantly bound in pocket-book form, and accompanied by a Silicate Slate, Memorandum, pocket for papers and PERPETUAL Calendar, showing the DAY OF THE WEEK for any date in the 17th, 18th, 19th and 20th centuries. It will be to every one's interest indeed, to examine this useful and convenient work before buying a new memorandum as it saves not only time and labor, but often dollars and cents as well, and withal costs no more than an ordinary diary in similar binding.

Prices of Different Styles of Binding:

No. 1, Eng. Cloth, plain, with memorandum,	\$.50
No. 2, " " " with slate, pocket, flap and mem.	.75
No. 3, Full Leather, " " " " " "	1.00
No. 4, " Morocco, " " " " " "	1.25
No. 5, " Russia, " " " " " "	1.50
No. 6, " Russia Calif. " " " " " "	2.00

Nos. 3, 4, 5 and 6 have RENEWABLE diaries. Nos. 5 and 6 are GILDED. Sent POSTPAID on receipt of price.

Address, **UNITED STATES MILLER,**
Milwaukee, Wis.

JOHN C. HIGGINS,

Manufacturer and Dresser of

Mill Picks,

No. 169 W. Kinzie Street,

CHICAGO, - ILLINOIS.



Picks will be sent on 30 or 60 days' trial to any responsible miller in the United States or Canada, and if not superior in every respect to any other pick made in this or any other country, there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is manufactured expressly for me at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct importation. References furnished from every State and Territory in the United States and Canada. Send for Circular and Price List.

[Mention this paper when you write us.]

Read It! An Immense Success. Read It!

OVER 500 MACHINES IN SUCCESSFUL OPERATION.

The only Dust Collector in the market which has been in steady operation over **ONE YEAR**, giving the best of satisfaction. It is an original machine and fully protected by **LETTERS PATENT**. It does not infringe *anyone's* patent, which we fully guarantee. Beware of infringements. We shall prosecute infringers to the full extent of the law. Bear in mind that all other machines have proved to be failures, therefore take care and buy the only thoroughly tested machine. Try it and satisfy yourselves.

FULLY GUARANTEED. NO LONGER AN EXPERIMENT.

No filling up the cloth. All the leading mills are adopting our machines, many having dispensed with the old dust room entirely, operating our **DUST COLLECTORS** exclusively. We refer you to any of the parties using our machines,

AN IMPORTANT PROBLEM SOLVED AT LAST.

Taking Care of the dust laden air from middlings purifiers and other machines, using air to carry off the dust, has been thoroughly met and conquered in the highest degree by the

PRINZ DUST COLLECTOR

After years of study and experiment success crowned the labor of F. PRINZ. He produced a machine that will give satisfaction in such a manner that no miller would ask for anything better.

Simplicity is a Leading Feature in this Machine.

The dead air chamber which has been a source of much trouble in other machines by wearing out and allowing the air to get in, thereby injuring the power of the cleaning mechanism on the cloth, which results in the cloth filling up, is entirely overcome in this machine, as it has **NO DEAD AIR CHAMBER**.

Machines of Different sizes Built.

Less Power is Used with this Machine than any other, as there is no back pressure on the fan; the motion of the fan has to be reduced whenever this machine is applied. It does away with the cumbersome, dusty, old-fashioned dust rooms entirely, and the numerous spouts leading to them, which fill up the mill leaving no room to get around.

It Retains the Dust in the Mill, thus allowing no waste of stock by being blown into the air, as is the case with the old-fashioned dust room. It does away with the **hazard of dust explosions** as the air coming from the machine is entirely free from dust, which is not the case with the air coming from any other Dust Collector offered to the milling public heretofore.

We, the undersigned, manufacturers, Guarantee Entire Satisfaction in the use of this machine. Read the testimonials below, they speak volumes for the merits of the Prinz Dust Collector. Low Prices for Excellent Machines. Address,

MILWAUKEE DUST COLLECTOR MFG. CO., Milwaukee, Wis., U. S. A.

Testimonials.

Office of E. P. ALLIS & CO., RELIANCE WORKS.

Milwaukee, Wis., Dec. 6, 1882.

To the Milwaukee Dust Collector Mfg. Co., Milwaukee, Wis.

Gentlemen:—I take pleasure in stating that I have seen your Dust Collector in operation, and with my experience with dust collectors, I consider yours the most perfect machine which has come to my knowledge heretofore. I think that it is all any miller can ask for. I have adopted it in mills which I am building.

Yours truly,

WM. D. GRAY, Expert Millwright.

Dundas, Minn., Aug. 10th, 1882.

MILWAUKEE DUST COLLECTOR MFG. CO.

Gentlemen:—We have been using the Prinz Dust Collector for the past year. We consider the machine a great success. It does its work well at all times.

Very truly,

E. T. ARCHIBALD & CO.

Sparta, Mich., Oct. 18, 1882.

Milwaukee Dust Collector Mfg. Co.

Gentlemen:—We have given the Dust Collector received from you a fair trial and are highly pleased with it. We believe it saves us a barrel of Flour a day, (24 hours,) from three run of stones, which will soon pay for it.

Yours respectfully,

SPARTA MILLING CO.

Milwaukee Dust Collector Mfg. Co.

Gentlemen:—Yours of the 6th at hand and noted. We shall want more of your machines as soon as we can get time to put them in, as we regard them a success. In fact they are the best machine of the kind on the market.

Yours,

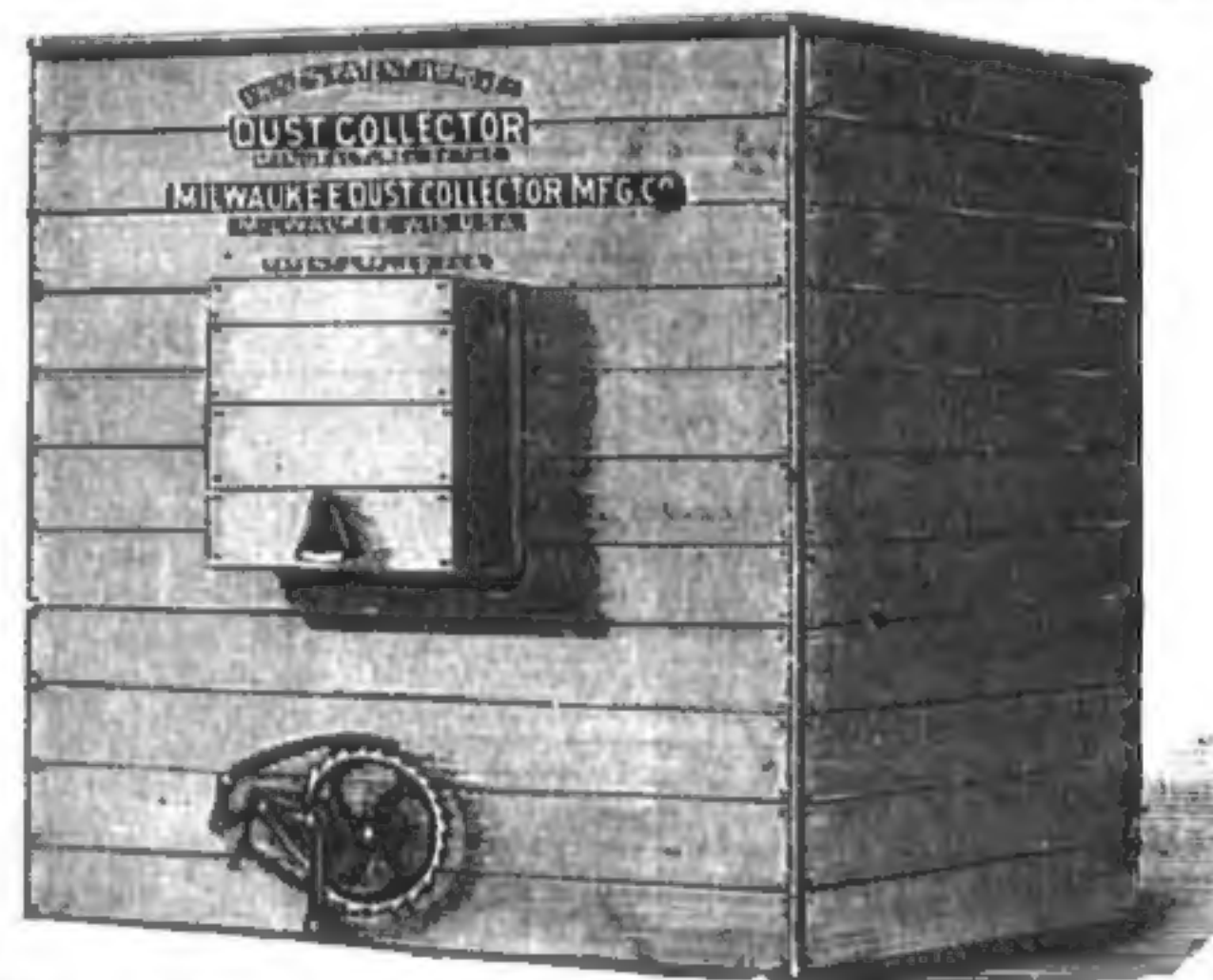
THORNTON & CHESTER.

Milwaukee Dust Collector Mfg. Co.,

Milwaukee, Wis.

[Please mention the UNITED STATES MILLER when you write to us.]

No Machine has Stood the Test which Ours has.



This is the only Successful Dust Collector in Operation.

St. Louis, Mo., Oct. 11, 1882.

Milwaukee Dust Collector Mfg. Co., Milwaukee, Wis.

Gentlemen:—The "Prinz Dust Catcher" on our No. 2 Smith's Purifier has now been in steady operation for 30 days and works satisfactorily in every way; the machine has no connection with any room and Dust room; the fan blows direct into the mill without any visible signs of dust; it deposits from 75 to 80 pounds in a barrel in 25 hours, being all the refuse matter from the purifier; another machine has arrived; will attach it to a Garden City Purifier and have it in operation in a few days.

Yours respectfully,

HEZEL MILLING CO.

Spring Valley Ohio, Oct. 12, 1882

Milwaukee Dust Collector Mfg. Co.

Gentlemen:—We have in use one of your Dust Collectors. We are entirely satisfied with its work and would not exchange it for any machine of its class we know of.

Yours respectfully,

BARRETT & SON.

Owensboro, Ky., Sept. 29, 1882.

Milwaukee Dust Collector Mfg. Co.

Gentlemen:—The machine you shipped us some time ago reached us the forepart of this week and was put in successful operation to-day. It starts off all right and we hope will continue to work well.

Your truly,

W. J. & L. LUMPKIN.

Hastings, Minn., Oct. 19, 1882.

Milwaukee Dust Collector Mfg. Co.

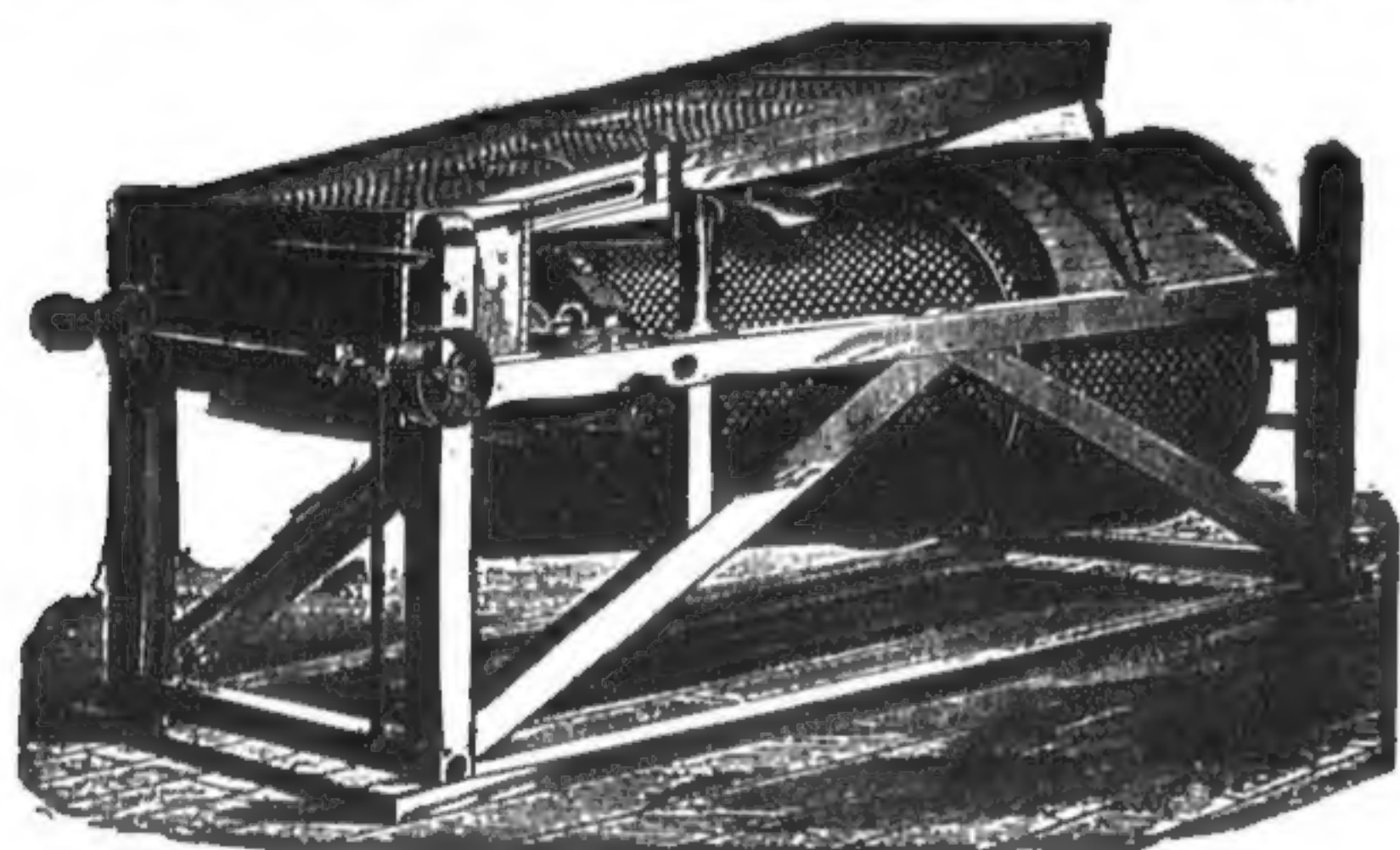
Gentlemen:—We have now been running your Dust Collector about 10 days and are well pleased with it. If we had room would put in more.

Yours truly,

CHAS. ESFENSCHIED.

COCKLE SEPARATOR MANUFACTURING COMPANY, MILWAUKEE

GENERAL MILL FURNISHERS



PLAIN COCKLE MACHINE.

AND MANUFACTURERS OF IMPROVED COCKLE SEPARATORS

(Kurth's Patent.) Also built in combination with

Richardson's Dustless Wheat Separators!

Also Sole Manufacturer of BEARDSLEE'S PAT. GRAIN CLEANER.



BEARDSLEE'S WHEAT CLEANER.

Perforated Zinc at Bottom Figures.

Send for Illustrated Catalogue.

WE GUARANTEE GREAT CAPACITY combined with GOOD QUALITY OF WORK. Any common Sieve will separate the cockle from wheat, but to separate it WITHOUT WASTE is the GREATEST FEATURE of our Machine. A WASTEFUL machine is a DAILY LOSS OF MONEY in a mill. There is NO MACHINE IN THE MARKET which can stand comparison with ours.

Carbondale, Ill., Dec. 2, 1881.

Cockle Separator Mfg. Co., Milwaukee.

Gentlemen:—Replying to your late favor, would say that we can cheerfully recommend your Cockle Separator as doing all that you claim for it. We have tested ours thoroughly by this time and know whereof we speak. We would not think of doing without it, having tried it once, and can conscientiously vouch for its good work.

Yours respectfully,

BROWN & WINFREY.

Perrysville, Ind., Nov. 24, 1881.

Cockle Separator Mfg. Co., Milwaukee.

Sirs:—The combined machine I bought of you has been running about three weeks. It certainly does all you claim for it, and is the most perfect Separator that I have any knowledge of.

Yours respectfully,

B. O. CARPENTER.

Hixton, Jackson Co., Wis., Dec. 30, '81

Cockle Separator Mfg. Co., Milwaukee.

Gents:—In answer to your inquiry of the 28th inst., I would say that the combined machine I bought of you last summer, works to my entire satisfaction.

Respectfully yours,

W. T. PRICE,

per D. G. THOMAS.

P. S.—I have been milling now for twenty-seven years, but never have I seen anything that will equal yours in cleaning wheat.

As an Oat Separator it is No. 1, and for Cockle it cannot be beat. I can take screenings and separate the cockle from it without wasting any of the small wheat. In my opinion every mill in the United States ought to have one, and if I were to build a mill I would have no other. I remain

Yours, etc.

D. G. THOMAS.

Minneapolis, Minn., Aug. 22, 1881.

Cockle Separator Mfg. Co.:

We have been using two of Beardslee's wheat cleaners, a scourer and finisher, for nearly two years, and are passing one hundred and fifty bushels per hour through them, one third more than rated capacity, and are not using any other cleaners, and consider our wheat as well cleaned as any in Minneapolis.

Yours truly,

CAHILL, FLETCHER & CO.

La Crosse, Wis., July 30, 1881.

Cockle Separator Mfg. Co., Milwaukee.

Gentlemen:—The Beardslee Grain Cleaner sent me about the middle of June has been in operation since that

time with very satisfactory results. We cannot see that it breaks the wheat or requires an unusual amount of power to run it.

Yours truly,

WILLIAM LISTMAN.

Milwaukee, Wis., Aug. 23, 1881.

Cockle Separator Mfg. Co.

Gentlemen:—The Beardslee's Grain Cleaners which we have purchased from you for our New Era and Milwaukee Mills give us the best of satisfaction. Experienced millers having seen the work done by the machine agree with us, that it cannot be beat. You are at liberty to use our names as a reference, and to any party calling on us we will be pleased to show the machine in operation.

Yours truly,

NEW ERA MILLING CO.

Pott's Patent Automatic Feeder!

The best device for regulating the FEED ON ROLLER MILLS, PURIFIERS, and other machines requiring a regular feed, spread out the full width. Very cheap and simple. Sent on trial upon application. Write for circulars with illustrations. Perforated Zinc of all sizes at low rates. Send for Illustrated Catalogue.

A PORTABLE ELECTRIC LIGHTER

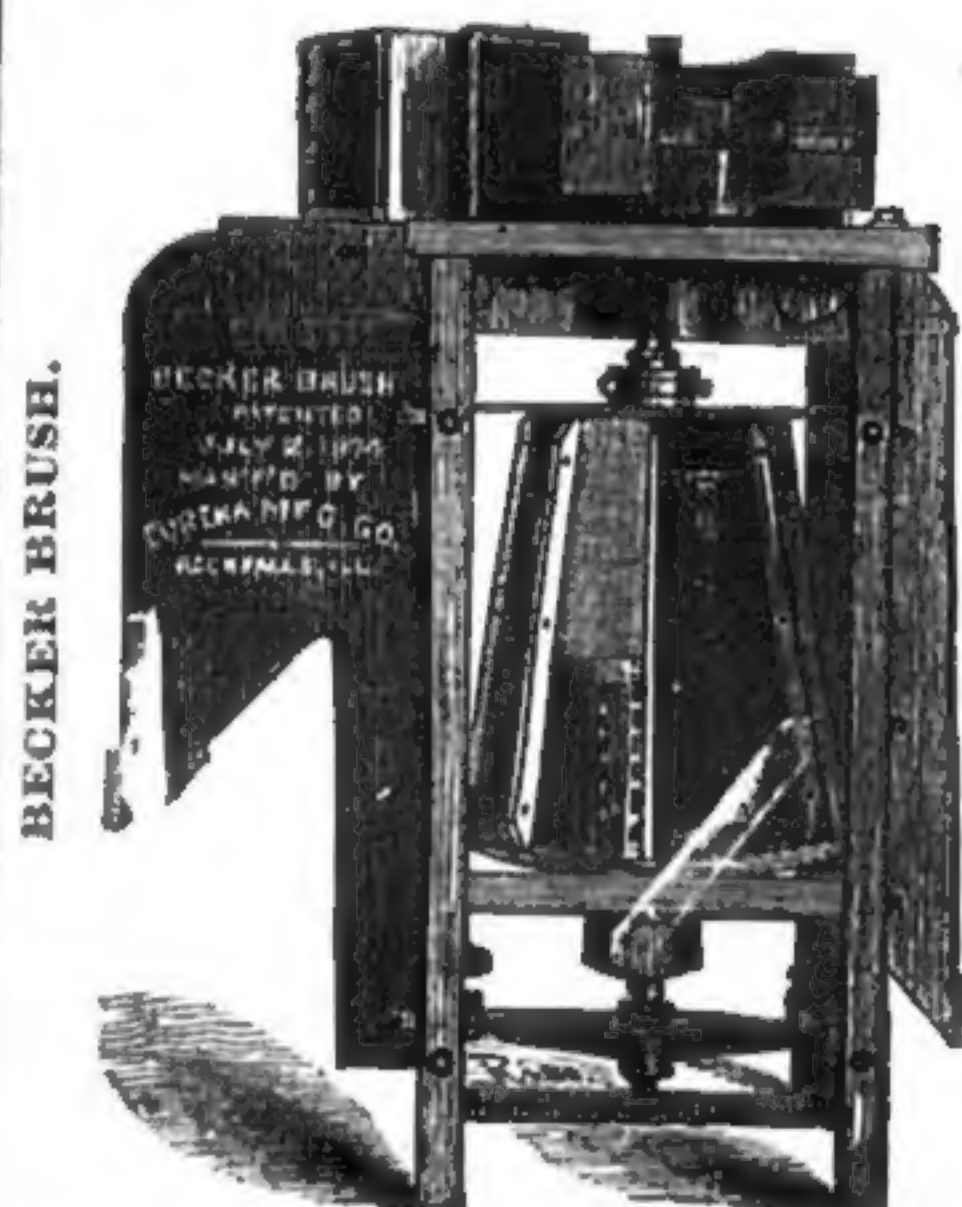
Scientific American, New York, Dec. 16, 1882.

A portable Electric Lighter for \$5.00 is being extensively sold by the Portable Electric Light Company, of 22 Water Street, Boston. It is an economical and safe apparatus for lighting for home and business purposes.

PATENTS

We continue to act as Solicitors for Patents, Caveats, Trade Marks, Copyrights, etc., for the United States, Canada, Cuba, England, France, Germany, etc. We have had thirty-five years' experience.

Patents obtained through us are noticed in the SCIENTIFIC AMERICAN. This large and splendid illustrated weekly paper, \$3.20 a year, shows the Progress of Science, is very interesting, and has an enormous circulation. Address MUNN & CO., Patent Solicitors, Publishers of SCIENTIFIC AMERICAN, 37 Park Row, New York. Hand book about Patents sent free.



BECKER BRUSH.

EUREKA MANUFACTURING CO.,

Manufacturers and Sole Proprietors of the

BECKER BRUSH,

Galt's Combined Smut and Brush Machine.

The Only Practical Cone-Shaped Machines in the Market, and for that Reason the Best.

ADJUSTABLE WHILE IN MOTION.

Nearly 1,000 of these Machines in Use.

In the United States and foreign countries, and so far as we know all that use them are pleased. Millers, millwrights, and milling experts claim the Cone Shape Solid Cylinder Brush is the true principle to properly clean grain. All machines sent on trial, the users to be the judges of the work. For price and terms apply to

EUREKA MAN'G CO., ROCK FALLS, ILL., U. S. A.

(Mention this paper when you write.)

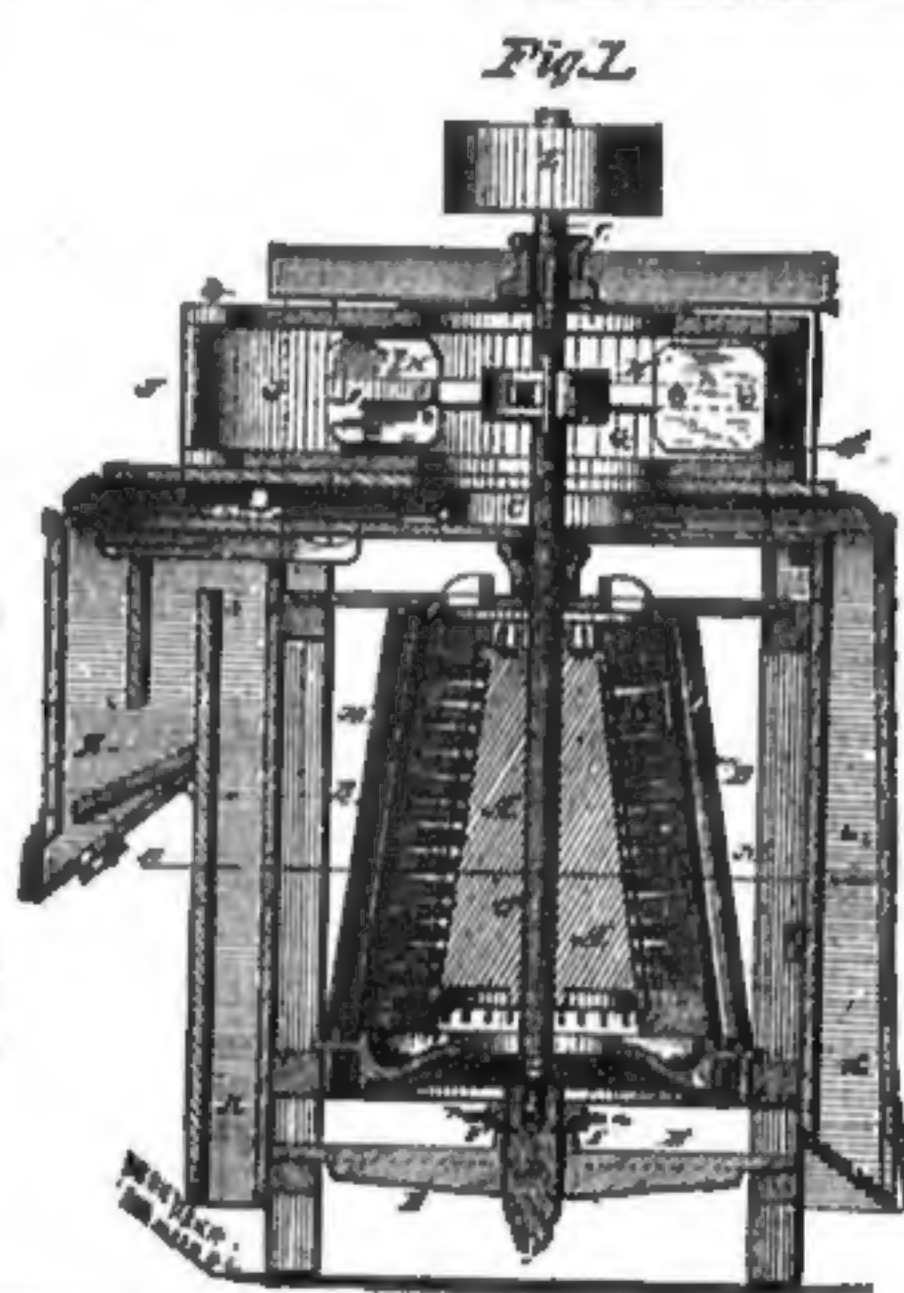
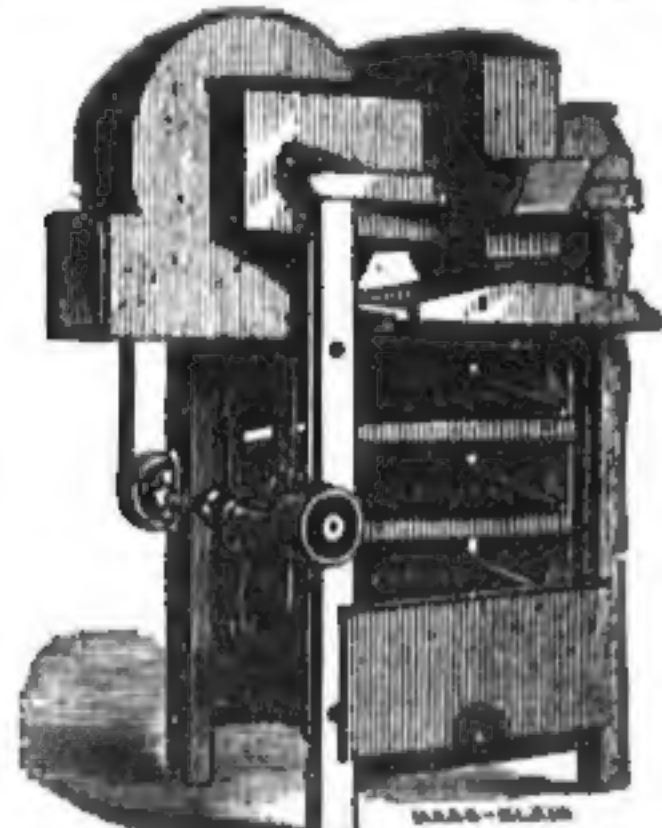


Fig. 1.

HOWES, BABCOCK & EWELL,

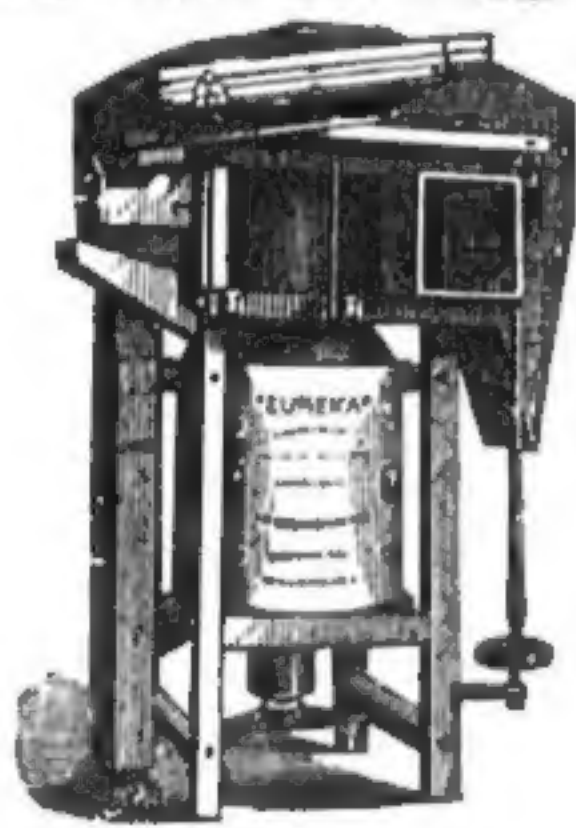
Established 1856. Silver Creek, Chautauqua County, New York, U. S. A. Established 1856.

MANUFACTURERS OF THE WORLD-REOWNED EUREKA GRAIN CLEANING MACHINERY AND SPECIALTIES HEREWITH ILLUSTRATED.



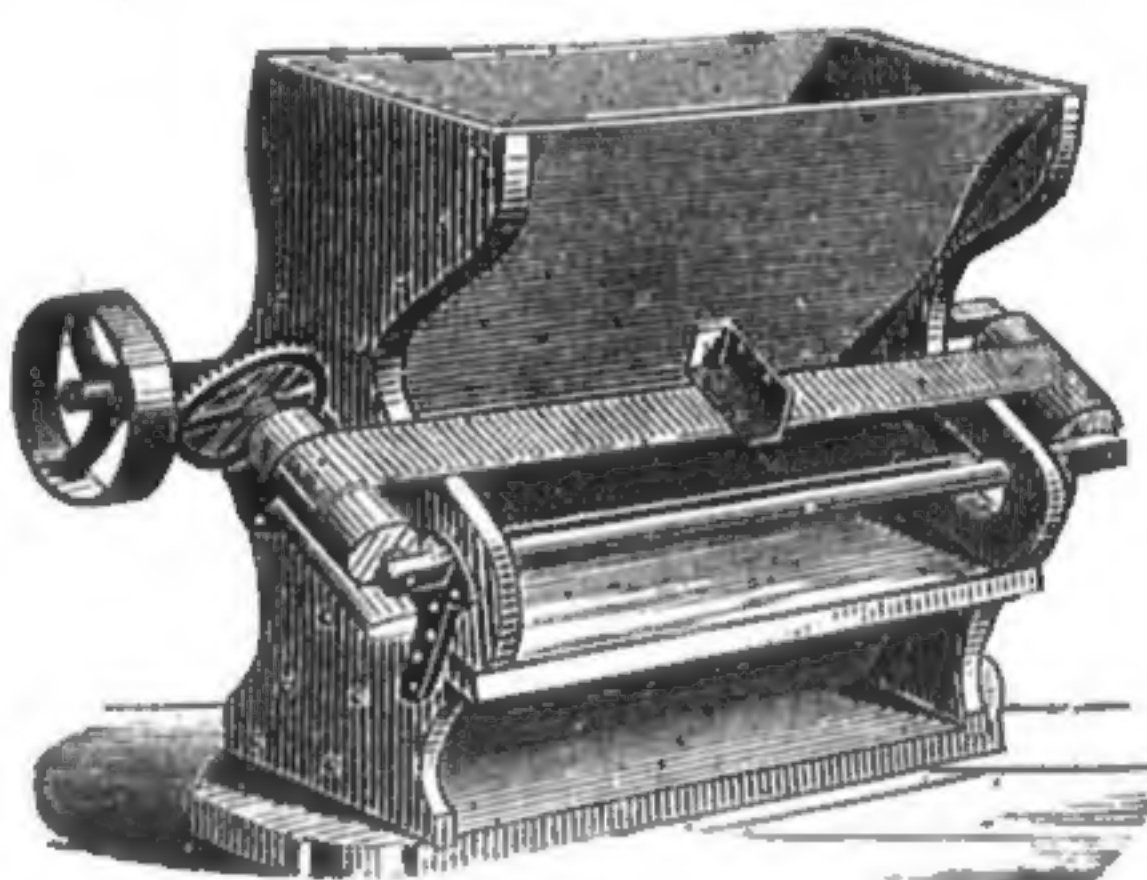
The Eureka Separator

occupies but little space, does its work in an effectual manner. Is also built for use in Elevators and Warehouses, with a capacity of from 100 to 1,000 bushels per hour.



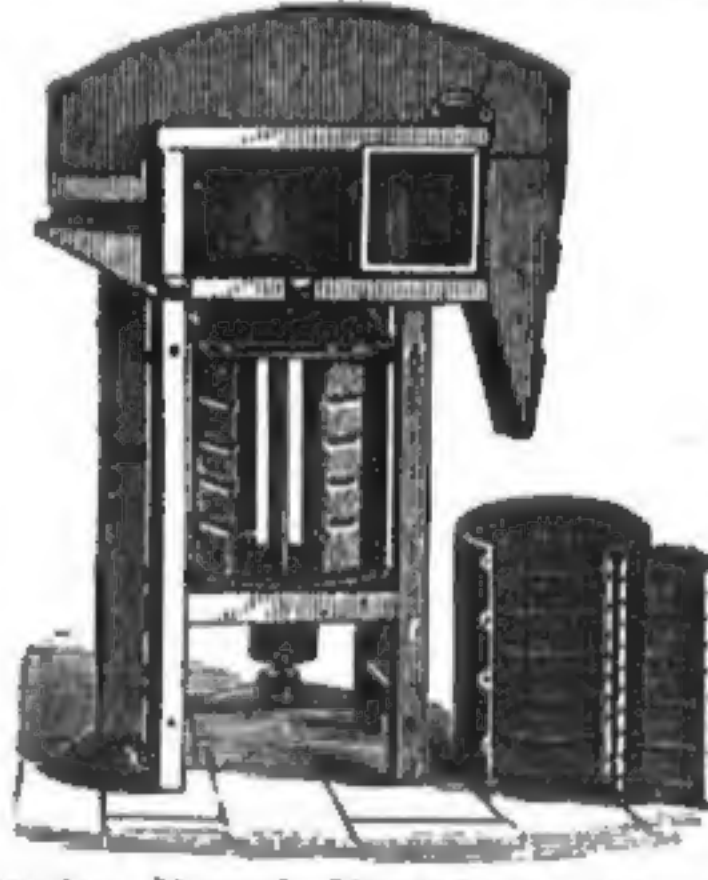
The Eureka Smut and Separating Machine.

A combined Smut and Separating Machine, having thorough ventilation. Over 15,000 of these Machines are now in use.



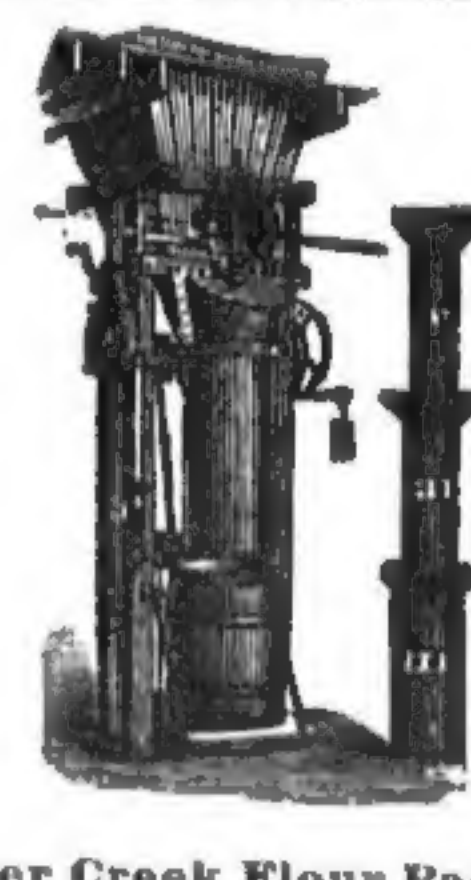
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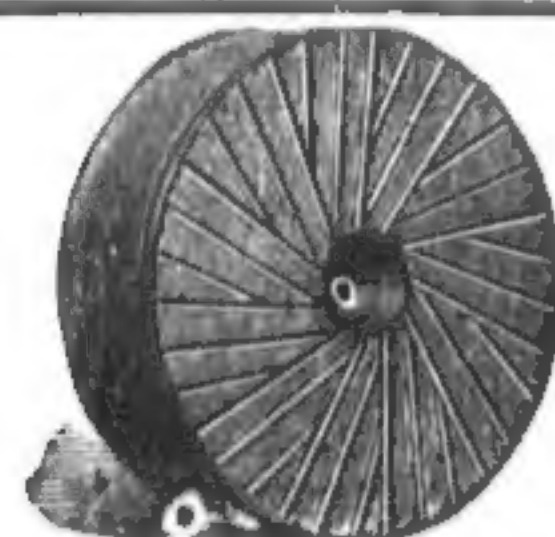
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